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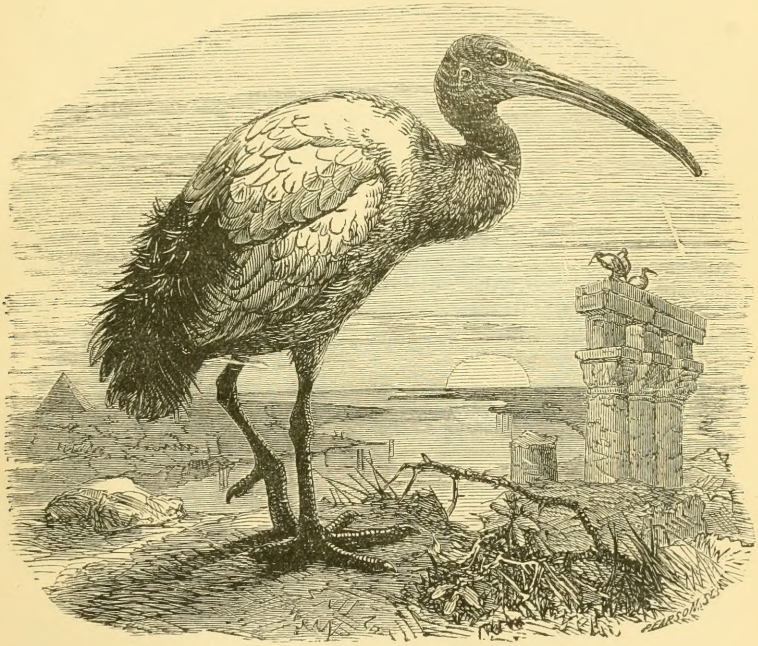
QUARTERLY JOURNAL OF ORNITHOLOGY.

EDITED BY
PHILIP LUTLEY SCLATER, D.Sc., F.R.S.,
AND
A. H. EVANS, M.A., F.Z.S.



VOL. I. 1907.

NINTH SERIES.

Delectasti me, Domine, in operibus manuum tuarum.

LONDON:
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Birds

PREFACE.

Nearly every part of the world has been laid under contribution for the papers in 'The Ibis' of 1907, including the partially explored islands of Formosa, South Georgia, Margarita, and Tahiti; while the books and papers which have been noticed from time to time shew how much Ornithology is indebted to the energy of travellers, both British and foreign. Once more, too, the excellent results of the Scottish National Antarctic Expedition are recalled to our minds by Mr. Eagle Clarke's third contribution on the Birds of the Weddell Sea; while we are also reminded of our own National Antarctic Expedition by the notice of Mr. Wilson's volume on the Birds obtained during its progress.

Mr. Dresser's descriptions of new or rare Palæarctic eggs—among which we may specially lay stress on that of *Ibidorhynchus struthersi*—naturally lead us to consider the great amount of oological work at present in progress. The books of that writer, Mr. Jourdain, and Dr. Rey on European Birds' Eggs, and that of Mr. North on those of Australia, form a remarkable series of publications to be issued in the course of a single year. These are accompanied by the equally important works of Dr. Hartert and Mr. Ridgway on Palæarctic and American Birds respectively, and of Dr. Sharpe on the History of the Natural-History Collections in the British Museum.

Our article on the Display of the King Bird-of-Paradise, by Sir William Ingram, further reminds us that in the course of the year both Birds-of-Paradise and Humming-birds have been successfully imported and exhibited in the Gardens of the Zoological Society of London; while another article, on *Columba unicincta*, furnished by Mr. Seth-Smith, the Secretary of the Avicultural Society, recalls to our minds the very useful work done for our science by Aviculturists.

As will be seen from our obituary, death has been sadly busy in the ranks of the Union during the past twelvemonth, and in particular the whole world is the loser by the decease of Professor Newton, almost immediately after the conclusion of his great work 'Ootheca Wolleyana.'

Lastly, we must not fail to congratulate in hearty terms our friends on the other side of the North Sea on the formation of the Danish Ornithologists' Union and on the publication of the first number of their Journal.

P. L. S.
A. H. E.

3 Hanover Square,
London, W.,
September 10th, 1907.

BRITISH ORNITHOLOGISTS' UNION.

1907.

[An asterisk indicates an Original Member. It is particularly requested that Members should give notice to the Secretary of the Union, 3 Hanover Square, London, W., of any error in their addresses or descriptions in this List, in order that it may be corrected.]

Date of Election.

1896. ALEXANDER, BOYD, F.Z.S. (1st Bn. Rifle Brigade); Wilsley, Cranbrook, Kent.

1901. ALLCHIN, JAMES H.; Museum and Public Library, Maidstone.

1888. APLIN, OLIVER VERNON; Stonehill House, Bloxham, Oxon.

1896. ARCHIBALD, CHARLES F.; 2 Darnley Road, West Park, Leeds.

5 1896. ARRIGONI DEGLI ODDI, Count ETTORE, Professor of Zoology, University, Padua; and Ca' oddo, Monselice, Padua, Italy.

1901. ARUNDEL, Major WALTER B., F.Z.S.; High Ackworth, Pontefract.

1901. ASHBY, HERBERT; Oakwood Lodge, Chandler's Ford, near Southampton.

1897. ASTLEY, The Rev. HUBERT DELAVAL, F.Z.S.; Benham Park, Newbury, Berks.

1885. BACKHOUSE, JAMES, F.Z.S.; Dalesside, Scarborough, Yorks.

10 1904. BAHR, PHILIP HEINRICH, B.A., F.Z.S.; Perrysfield House, Oxted, Surrey.

1901. BAILWARD, Col. A. C., F.Z.S. (R.F.A.); 1 Princes Mansions, Victoria Street, S.W.

1892. BAKER, E. C. STUART, F.Z.S.; care of Messrs. H. S. King & Co., 65 Cornhill, E.C.; and Shillong, Assam, India.

1901. BAKER, JOHN C., M.B., B.A.; Ceely House, Aylesbury, Bucks.

1899. BALFOUR, FREDERICK ROBERT STEPHEN; 21 Cambridge Square, W.

15 1889. BALSTON, RICHARD JAMES, F.Z.S.; Springfield, Maidstone.

1906. BANNERMAN, DAVID A.; 11 Washington House, Basil Street, S.W.

1890. BARCLAY, FRANCIS HUBERT, F.Z.S.; The Warren, Cromer, Norfolk.

Date of Election.

1872. Barclay, Colonel Hanbury, F.Z.S.; 34 Queen's Gate Gardens, S.W.

1885. Barclay, Col. Hugh G., F.Z.S.; Colney Hall, Norwich.

20 1889. Barrett-Hamilton, Major Gerald E. H., F.Z.S., 5th Royal Irish Rifles; Kilmanock House, Arthurstown, Waterford, Ireland.

1881. Barrington, Richard Manliffe, LL.D.; Fassaroe, Bray, Co. Wicklow.

1903. Bartels, Max.; Pasir Datar, Halte Tjisaat (Preanger), Java, Dutch India.

1906. Bates, George L., C.M.Z.S.; Kribi, Kamerun, West Africa.

1902. Becher, Harry, C.E.; Beechwood Cottage, Burnham-on-Crouch.

25 1897. Benson, John; The Post Office, Vancouver, B.C.

1897. Berry, William, B.A., LL.B.; Tayfield, Newport, Fifeshire.

1907. Bethell, The Hon. Richard; 30 Hill Street, Mayfair, W.

1907. Bickerton, William; The Hawthorns, Marlborough Road, Watford, Herts.

1880. Bidwell, Edward; 1 Trig Lane, Upper Thames Street, E.C.

30 1884. Bingham, Lt.-Col. Charles T., F.Z.S.; 6 Gwendwr Road, West Kensington, W.

1892. Bird, The Rev. Maurice C. H., M.A.; Brunstead Rectory, Stalham, S.O., Norfolk.

1891. Blaauw, F. E., C.M.Z.S.; Gooilust, 'sGraveland, Hilversum, Noord-Holland.

1903. Blathwayt, The Rev. Francis Linley, M.A.; 1 Stonefield Avenue, Lincoln.

1897. Bonar, The Rev. Horatius Ninian, F.Z.S.; Free Church Manse, Salton, Pencaitland, East Lothian, N.B.

35 1905. Bone, Henry Peters, F.Z.S.; 28 Adelaide Crescent, Brighton.

1894. Bonhote, John Lewis, M.A., F.L.S., F.Z.S.; Gadespring Lodge, Hemel Hempstead, Herts.

1906. Boorman, Staines; Heath Farm, Send, Woking, Surrey.

1898. Booth, George Albert; Stephenson Terrace, Preston; and Fern Hill, Grange-over-Sands, Lancs.

1904. Booth, Harry B.; 40 Spring Royd, Shipley, Yorks.

40 1907. Boraston, John Maclair; Ingleside, Stretford, near Manchester.

1895. Bradford, Dr. J. Rose, F.R.S., F.Z.S; 8 Manchester Square, W.

Date of Election.

1902. Bridgeman, Lieut. The Hon. Richard O. B., R.N.; Weston Park, Shifnal, Salop; and H.M.S. 'Hibernia,' Channel Fleet.

1902. Bristowe, Bertram Arthur; The Cottage, Stoke D'Abernon, Surrey.

1885. Brockholes, William Fitzherbert; Claughton-on-Brock, Garstang, Lancashire.

45 1890. Brooke, Harry Brinsley; 33 Egerton Gardens, S.W.

1899. Brooke, John Arthur, J.P.; Fenay Hall, Huddersfield; and Fearn Lodge, Ardgay, Ross-shire.

1900. Bruce, William Speirs, F.R.S.E.; Scottish National Antarctic Expedition Office, Surgeon's Hall, Edinburgh.

1907. Buckley, Charles Mars; 14 Hans Crescent, S.W.

1906. Bucknill, John Alexander Strachey, M.A., F.Z.S.; Hylands House, Epsom, Surrey.

50 1895. Bulgaria, H.R.H. Ferdinand, Prince of; The Palace, Sofia, Bulgaria.

1907. Butler, Arthur Gardiner, Ph.D., F.L.S., F.Z.S.; 124 Beckenham Road, Beckenham, Kent.

1899. Butler, Arthur Lennox, F.Z.S.; Supt. of Game Preservation, Sudan Government, Khartum, Sudan.

1884. Butler, Lieut.-Col. E. A.; Plumton House, Bury St. Edmunds, Suffolk.

1896. Butterfield, W. C. J. Ruskin; Curator of the Corporation Museum, Brassey Institute, Hastings.

55 1900. Buttress, Bernard A. E.; Craft Hill, Dry Drayton, Cambridge.

1905. Buxton, Anthony; Knighton, Buckhurst Hill, Essex.

1884. Buxton, Geoffrey Fowell, F.Z.S.; Dunston Hall, Norwich.

1895. Buxton, S. Gurney, F.Z.S.; Catton Hall, Norwich.

1896. Cade, Francis J.; Teighmore, Cheltenham.

60 1889. Cameron, Ewen Somerled, F.Z.S.; V. Ranch, Terry, Montana, U.S.A.

1896. Cameron, Capt. James S.; 2nd Bn. Royal Sussex Regt., Malta; and Low Wood, Bethersden, Ashford, Kent.

1888. Cameron, John Duncan; Low Wood, Bethersden, Ashford, Kent.

1892. Campbell, Charles William, C.M.G., C.M.Z.S., H.B.M. Chinese Consular Service; British Legation, Peking, China.

Date of Election.

1906. Campbell, The Hon. Ian Malcolm; Cawdor Castle, Nairn N.B.

65 1890. Cave, Charles John Philip, F.Z.S.; Ditcham Park, Petersfield.

1894. Chance, A. Macomb, M.A.; 9 Hermitage Road, Edgbaston, Birmingham.

1884. Chapman, Abel, F.Z.S.; Houxty, Wark-on-Tyne.

1907. Chapman, Edward Henry; 3 Hare Court, Temple, E.C.

1882. Chase, Robert William; Pool Hall, Wishaw, near Birmingham.

70 1897. Cholmley, Alfred John, F.Z.S.; c/o Mr. R. H. Porter, 7 Princes Street, Cavendish Square, W.

1904. Clarke, Capt. Goland van Holt, D.S.O., F.Z.S., 18th Hussars; Brook House, Hayward's Heath, Sussex.

1889. Clarke, Major Stephenson Robert, F.Z.S.; Borde Hill, Cuckfield, Sussex.

1880. Clarke, William Eagle, F.L.S.; Royal Scottish Museum, Edinburgh.

1904. Cochrane, Commr. Henry Lake, R.N.; H.M.S. 'Cochrane'; and Burston House, Pittville, Cheltenham.

75 1898. Cocks, Alfred Heneage, F.Z.S.; Poynetts, Skirmett, near Henley-on-Thames.

1895. Coles, Richard Edward; Ashley, Arnewood, Lymington.

1904. Collier, Charles, F.Z.S.; Clieveden House, 21 Eaton Terrace, S.W.

1906. Colman, Russell James, D.L., J.P.; Norwich.

1888. Cordeaux, Major William Wilfrid, 21st Lancers, Hounslow.

80 1882. Cory, Prof. Charles B., F.Z.S.; 160 Boylston Street, Boston, Mass., U.S.A.

1896. Cowie, Lt.-Col. Alexander Hugh, R.E., F.Z.S.; Aldershot; and c/o H. Ward, Esq., Yeatton, Lymington, Hants.

1899. Cowie, The Rev. Archibald G. G.; c/o S.P.G. Mission, Cawnpore, India.

1896. Crawford, Francis C.; 19 Royal Terrace, Edinburgh.

1894. Crewe, Sir Vauncey Harpur, Bt.; Calke Abbey, Derby.

85 1898. Crossman, Alan F., F.Z.S.; Cumminin Station, near Doodlakine, Western Australia.

1903. Crowley, John Cyril, M.A.; 16 Chatsworth Road, Croydon.

Date of Election.

1898. Crowley, Reginald Alwyn; Highfield, Alton, Hants; and 22 High Street, Croydon.

1899. Curtis, Frederick, F.R.C.S.; Lyndens, Redhill, Surrey.

1877. Dalgleish, John J.; Brankston Grange, Bogside Station, Stirling, N.B.

90 1898. Dalrymple, Capt. John James, Viscount, M.P.; Lochinch, Castle Kennedy, Wigtonshire; and 2nd Bn. Scots Guards.

1896. Danford, Capt. Bertram W. Y., R.E.; Bermuda.

1897. Darnley, Ivo Francis Walton, Earl; Cobham Hall, Gravesend; and Clifton Lodge, Athboy, Co. Meath.

1883. Davidson, James, F.Z.S.; 32 Drumsheugh Gardens, Edinburgh.

1905. Davis, Kenneth James Acton; Julian Hill, Harrow; and King's College, Cambridge.

95 1902. Dent, Charles Henry; c/o Bolitho & Co. Ltd., Penzance, Cornwall.

1891. De Vis, Charles W.; Queensland Museum, Brisbane; and care of Mr. B. Quaritch, 15 Piccadilly, W.

1893. De Winton, W. E., F.Z.S.; Graftonbury, Hereford; and Orielton, Pembroke.

1896. Dobbie, James B., F.Z.S.; 9 Mansfield Place, Edinburgh.

1889. Dobie, William Henry, M.R.C.S.; 2 Hunter Street, Chester.

100 1895. Donovan, Major Charles, I.M.S.; Ardmore, Passage West, Co. Cork.

1904. Dorrien-Smith, Thomas Algernon, J.P., D.L.; Tresco Abbey, Scilly Isles.

1904. Drake-Brockman, Dr. Ralph E., F.Z.S.; Cheriton, Wellington Road, Bournemouth.

1865. Dresser, Henry Eeles, F.L.S., F.Z.S.; 44 Hornton Court, Kensington, W.

1896. Drewitt, Frederic Dawtrey, M.A., M.D., F.Z.S.; 14 Palace Gardens Terrace, Kensington, W.

105 1890. Drummond-Hay, Major James A. G. (late Coldstream Guards); Seggieden, Perth, N.B.

1904. Duckworth, George Herbert; 22 Hyde Park Gate, S.W.

1878. Durnford, W. Arthur, J.P.; Elsecar, Barnsley.

1896. Duthie, Lt.-Col. W. H. M.; The Presbytery, North Berwick.

1905. Dutton, The Hon. and Rev. Canon Frederick George; Bibury, Fairford.

Date of Election.

110 1903. Earle, Edward Vavasour; Franks Hall, Farningham, Kent.

1895. Elliot, Edmund A. S., M.R.C.S.; Woodville, Kingsbridge, South Devon.

1884. Elliott, Algernon, C.I.E.; 16 Belsize Grove, Hampstead, N.W.

1902. Ellison, The Rev. Allan, M.A.; Ardoyne House, Watton, Hertford.

1904. Elton, Henry Brown, B.A.; London Hospital, E.

115 1866. Elwes, Henry John, F.R.S., F.Z.S.; Colesborne, Cheltenham.

1879. Evans, Arthur Humble, M.A., F.Z.S.; 9 Harvey Road, Cambridge. (*Joint Editor.*)

1888. Evans, William, F.R.S.E.; 38 Morningside Park, Edinburgh.

1905. Ewen, Guy L'Estrange (King's Messenger); St. James's Club, Piccadilly, W.

1892. Fairbridge, William George; 141 Long Market Street, Capetown, South Africa.

120 1894. Farquhar, Capt. Arthur M., R.N., C.V.O.; Granville Lodge, Aboyne, N.B.

1898. Farquhar, Commr. Stuart St. J., R.N.; H.M.S. 'Vestal,' China Station; and Drumnagesk, Aboyne, N.B.

1873. Feilden, Col. Henry Wemyss, C.B., C.M.Z.S.; Burwash, Sussex; and Junior United Service Club, S.W.

1897. Fenwick, Edward Nicholas Fenwick; Oxford and Cambridge Club, Pall Mall, S.W.

1901. Finlinson, Horace W., F.Z.S.; 19 George Street, Bedford.

125 1892. Finn, Frank, B.A., F.Z.S.; 29 Chalcot Crescent, Primrose Hill, N.W.

1902. Flower, Capt. Stanley Smyth, F.Z.S.; Kedah House, Zoological Gardens, Gizeh, Cairo.

1884. Forbes, Henry Ogg, LL.D., F.Z.S.; Free Public Museums, Liverpool.

1903. Foster, Nevin Harkness; Hillsborough, Co. Down, Ireland.

1880. Foster, William; 39 Colville Gardens, Bayswater, W.

130 1887. Fowler, William Warde, M.A.; Lincoln College, Oxford.

1865. Fox, The Rev. Henry Elliott, M.A.; The Croft, Lytton Grove, Putney Hill, S.W.

1881. Freke, Percy Evans; Southpoint, Limes Road, Folkestone.

1895. Frohawk, Frederick William; Ashmount, Rayleigh, Essex.

Date of Election.

1881. Gadow, Hans, Ph.D., F.R.S., F.Z.S.; University Museum of Zoology, Cambridge.

135 1886. Gainsborough, Charles William Francis, Earl of; Exton Park, Oakham.

1907. Gandolfi, Alfonso Otho Gandolfi-Hornyold, Duke, Ph.D.; Blackmore Park, Hanley Swan, Worcestershire.

1900. Garnett, Charles; 9 Cleveland Gardens, Hyde Park, W.; and New University Club, St. James's Street, S.W.

1892. Gerrard, John, Government Inspector of Mines; Worsley, near Manchester.

1902. Gibbins, William Bevington, F.Z.S.; Ettington, Stratford-on-Avon.

140 1879. Gibson, Ernest, F.Z.S.; 105 Cadogan Gardens, Sloane Square, S.W.

1902. Gillett, Frederick, F.Z.S.; 28 Beaufort Gardens, S.W.; and Junior Carlton Club, Pall Mall, S.W.

1902. Gillman, Arthur Riley; 5 Fellows Road, Hampstead, N.W.; and 3 Southampton Street, High Holborn, W.C.

1904. Gilroy, Norman; 95 Claremont Road, Forest Gate, E.; and Seaford, Sussex.

1903. Gladstone, Hugh Steuart, M.A., F.Z.S.; Capenoch, Thornhill, Dumfriesshire.

145* 1858. Godman, Frederick DuCane, D.C.L., F.R.S., F.Z.S.; 45 Pont Street, S.W. (*President.*)

* 1858. Godman, Percy Sanden, B.A., C.M.Z.S.; Muntham, Horsham.

1906. Goodall, Jeremiah Matthews, F.Z.S.; 52 Oxford Gardens, North Kensington, W.

1901. Goodchild, Herbert; 66 Gloucester Road, Regent's Park, N.W.

1900. Goodfellow, Walter; Montrose, New Park Road, West Southbourne, Hants.

150 1905. Goodyer, Leonard Ernest; 17 Old Hall Drive, Gorton, Manchester.

1906. Gordon, Seton Paul, F.Z.S.; Auchintoul, Aboyne, N.B.

1899. Gould, Frank Herbert Carruthers, F.Z.S.; Matham Manor House, East Molesey, Surrey.

1895. Grabham, Oxley, M.A.; The Museum, York.

1906. Griffith, Arthur Foster; 59 Montpellier Road, Brighton.

155 1885. Guillemard, F. H. H., M.A., M.D., F.Z.S.; Old Mill House, Trumpington, Cambridge.

Date of Election.

1876. Günther, Albert C. L. G., M.A., M.D., F.R.S., F.Z.S.; 2 Lichfield Road, Kew Gardens, S.W.

1870. Gurney, John Henry, F.Z.S.; Keswick Hall, Norwich; and Athenæum Club, Pall Mall, S.W.

1896. Gurney, Robert; Ingham Old Hall, Stalham, Norfolk.

1890. Gwatkin, Joshua Reynolds Gascoign; The Manor House, Potterne, Devizes.

160 1901. Haagner, Alwin Karl, F.Z.S.; Dynamite Factory, Modderfontein, Transvaal, South Africa.

1891. Haigh, George Henry Caton; Grainsby Hall, Great Grimsby, Lincolnshire.

1887. Haines, John Pleydell Wilton; 17 King Street, Gloucester.

1898. Hale, The Rev. James Rashleigh, M.A.; The Vicarage, Horton Kirby, Dartford, Kent.

1905. Hamerton, Capt. Albert Edward, R.A.M.C., D.S.O.; St. Alban's Vicarage, York Road, Leeds.

165 1904. Harington, Capt. Herbert Hastings; 92nd Punjabis, Bhamo, Upper Burma; and c/o Messrs. Thos. Cook & Sons, Ludgate Circus, E.C.

1900. Harper, Edmund William, F.Z.S.; 55 Waterloo Road, Bedford.

1900. Harris, Henry Edward; 2 St. Aubyn's Mansions, Hove, Brighton.

1893. Hartert, Ernst J. O., Ph.D., F.Z.S.; The Zoological Museum, Tring, Herts.

1868. Harting, James Edmund, F.L.S., F.Z.S.; Edgewood, Weybridge, Surrey.

170 1896. Hartland, John Cole; c/o Messrs. Hunt & Co., P.O. Box 11, Yokohama, Japan.

1893. Hartmann, William; Milburn, Esher, Surrey.

1899. Harvey, Capt. Robert Napier, R.E.; Stanhope Lines, Aldershot.

1873. Harvie-Brown, John A., F.R.S.E., F.Z.S.; Dunipace House, Larbert, Stirlingshire, N.B.

1900. Hasluck, Percy Pedley Harford; The Wilderness, Southgate, N.

175 1902. Hatfeild, John Randall; Edlington Hall, Horncastle, Lincolnshire.

1898. Hawker, Richard M., F.Z.S.; Bath Club, Dover Street, W.; and c/o Messrs. Dalgety & Co., 96 Bishopsgate Street Within, E.C.

Date of
Election.

1905. Hawkshaw, John Clarke, M.A., M.I.C.E., F.Z.S., F.G.S.; Hollycombe, Liphook, Hants; and 33 Great George Street, Westminster, S.W.

1905. Headley, Frederick Webb, F.Z.S.; Haileybury College, Herts.

1907. Hedges, George Mitchell; 42 Kensington Park Gardens, W.

180 1905. Hellmayr, Carl E.; care of Dr. Hartert, Zoological Museum, Tring, Herts.

1902. Hett, Geoffrey Seccombe; 16 Palace Gardens Mansions, The Mall, Kensington, W.

1899. Heywood, Richard; Narside, Narborough, Swaffham, Norfolk.

1900. Hills, John Waller; 14 Victoria Grove, Kensington, W.; and Highhead Castle, Carlisle.

1884. Holdsworth, Charles James, J.P.; Fernhill, Alderley Edge, Cheshire.

185 1877. Holdsworth, Edmund W. H., F.Z.S.; South Town, Dartmouth, Devon.

1905. Hopkinson, Emilius, M.B., D.S.O., F.Z.S.; 45 Sussex Square, Brighton; and Bathurst, Gambia, West Africa.

1904. Horsbrugh, Capt. Boyd Robert, F.Z.S., Army Service Corps, Naval Hill, Bloemfontein, O.R.C., South Africa.

1888. Horsfield, Herbert Knight; Crescent Hill, Filey, Yorks.

1893. Hose, Charles, D.Sc., F.Z.S.; Baram, Sarawak, Borneo.

190 1895. Howard, Henry Eliot, F.Z.S.; Clarelands, near Stourport.

1881. Howard, Robert James; Shearbank, Blackburn, Lancashire.

* 1858. Hudleston, Wilfrid Hudleston, M.A., F.R.S., F.Z.S.; 8 Stanhope Gardens, S.W.

1893. Hudson, William Henry, F.Z.S.; Tower House, St. Luke's Road, Westbourne Park, W.

1869. Hume, Allan Octavian, C.B., C.S.I., F.Z.S.; The Chalet, Kingswood Road, Upper Norwood, S.E.

195 1890. Hunter, Henry Charles Vicars, F.Z.S.; Mawley Hall, Cleobury Mortimer, Salop.

1901. Ingram, Collingwood; The Bungalow, Westgate-on-Sea.

1902. Innes Bey, Dr. Walter Francis; Curator of the Zoological Museum, School of Medicine, Cairo, Egypt.

1888. Jackson, Frederick J., C.B., C.M.G., F.Z.S., F.L.S.; Uganda, British East Africa; The Red House, Aldeburgh, Suffolk.

1892. James, Henry Ashworth, F.Z.S.; Hurstmonceux Place, Hailsham, Sussex.

Date of Election.

200 1896. Jesse, William, F.Z.S.; Meerut College, Meerut, India; and 17 Whiteford Road, Mutley, Plymouth.

1889. Johnson, Frederick Ponsonby, B.A., J.P., D.L.; Castlesteads, Brampton, Cumberland.

1891. Johnston, Sir Harry Hamilton, G.C.M.G., K.C.B., F.Z.S. St. John's Priory, Poling, near Arundel, Sussex.

1905. Johnstone, Edwin James, F.Z.S.; Junior Carlton Club, Pall Mall, S.W.

1900. Jones, Major Henry, F.Z.S. (late 62nd Regt.); East Wickham House, Welling, Kent.

205 1899. Jourdain, The Rev. Francis Charles Robert, M.A.; Clifton Vicarage, near Ashbourne, Derbyshire.

1902. Joy, Norman Humbert, M.R.C.S., L.R.C.P.; Thurlestone, Bradfield, near Reading.

1880. Kelham, Br.-Genl. Henry Robert, C.B. (late Highland Light Infantry); Well Hall, Hamilton, N.B.

1894. Kelsall, Major Harry Joseph, R.G.A.; Hongkong.

1897. Kelsall, The Rev. John Edward, M.A.; Milton Rectory, New Milton, Hants.

210 1904. Kelso, John Edward Harry, M.D.; San Remo, 12 Festing Road, Southsea, Hants.

1891. Kerr, J. Graham, F.Z.S., Regius Professor of Zoology, The University, Glasgow.

1895. Kingsford, William Edward; Cairo, Egypt.

1902. Kinnear, Norman Boyd; 12 Grosvenor Crescent, Edinburgh.

1882. Knubley, The Rev. Edw. Ponsonby, M.A.; Steeple Ashton Vicarage, Trowbridge.

215 1900. Koenig, Dr. Alexander Ferdinand; Coblenzer-Strasse 164, Bonn, Germany.

1906. Kollibay, Paul; Ring 121, Neisse, Germany.

1892. Laidlaw, Thomas Geddes; Bank of Scotland, Perth.

1884. Langton, Herbert; 11 Marlborough Place, Brighton.

1881. Lascelles, The Hon. Gerald, F.Z.S.; The King's House, Lyndhurst.

220 1892. La Touche, John David Digues, C.M.Z.S.; c/o Custom House, Shanghai, China.

1898. Learoyd, A. Ernest; Rawthorpe Hall, Huddersfield.

1905. Legge, The Hon. Gerald; 37 Charles Street, Berkeley Square, W.

1905. Leigh, Henry Boughton; Brownsover Hall, Rugby.

Date of Election.

1906. Leigh, John Hamilton, F.Z.S.; Matcham's Park, Ringwood, Hants.

225 1898. Le Souëf, Dudley, C.M.Z.S.; Director of the Zoological Gardens, Melbourne, Victoria, Australia.

1868. Le Strange, Hamon, F.Z.S.; Hunstanton Hall, King's Lynn, Norfolk.

1903. Lethbridge, Ambrose Yarburgh; Dudmaston Hall, Bridgnorth, Salop; and Guards' Club, Pall Mall, S.W.

1889. Leyland, Christopher John, F.Z.S.; Haggerston Castle, Beal, Northumberland.

1897. Lilford, John, Lord, F.Z.S.; Lilford Hall, Oundle, Northants.

230 1897. Lodge, George Edward, F.Z.S.; The Studios, 5 Thurloe Square, S.W.

1905. Lovat, Simon Joseph, Lord, C.B., C.V.O., D.S.O., F.Z.S.; Beaufort Castle, Beauly, Inverness-shire.

1904. Lowe, Dr. Percy R.; c/o Sir Frederic Johnstone, Bt., The Hatch, Windsor.

1889. Loyd, Lt.-Col. Arthur Purvis, F.Z.S. (late 21st Hussars); Hurst Lodge, Sunningdale, Berks.

1902. Lucas, Auberon Thomas, Lord; 7 Cleveland Row, St. James's, S.W.

235 1877. Lumsden, James, F.Z.S.; Arden House, Arden, Dumbartonshire, N.B.

1904. Lynes, Lieut. Hubert, R.N.; H.M.S. 'Venus,' Mediterranean Fleet.

1900. McConnell, Frederick Vavasour; 37 Cranley Gardens, South Kensington, S.W.

1904. Macdonald, Kenneth Campbell; Burma Police, Rangoon, Burma.

1905. McGregor, Peter James Colquhoun; British Embassy, Constantinople.

240 1897. McLean, John Chambers; Te Karaka, Gisborne, New Zealand.

1899. Macmillan, George Augustin; 27 Queen's Gate Gardens, S.W.

1906. Macmillan, William Edward Frank; 27 Queen's Gate Gardens, S.W.

1894. Macpherson, Arthur Holte, F.Z.S.; 54 Cleveland Square, Hyde Park, W.

Date of
Election.

1906. Magrath, Major Henry Augustus Frederick; 51st Sikhs Frontier Force, Bannu, N.W.P., India; and c/o Messrs. H. S. King & Co., 9 Pall Mall, S.W.

245 1907. Mann, Thomas Hugh. F.Z.S.; Hyde Hall, Sawbridgeworth, Herts.

1904. Mapleton, Harvey William, B.A.; Bracknell Cottage, Hartley Wintney, Winchfield, Hants; and Badgworth, Axbridge, Somerset.

1894. Marshall, Archibald McLean, F.Z.S.; Crogen, Corwen, N. Wales.

1894. Marshall, James McLean, F.Z.S.; Bleaton Hallet, Blairgowrie, N.B.

1901. Martin, Rev. William Keble, M.A.; Ashbourne, Derbyshire.

250 1897. Mason, Col. Edward Snow; 20 Minster Yard, Lincoln.

1898. Massey, Herbert; Ivy Lea, Burnage, Didsbury, Manchester.

1907. Mathews, Gregory Macalister, F.Z.S.; Langley Mount, Watford, Herts.

1896. Maxwell, Rt. Hon. Sir Herbert E., Bt., P.C., F.R.S.; 49 Lennox Gardens, S.W.

1883. Meade-Waldo, Edmund Gustavus Bloomfield, F.Z.S.; Stonewall Park, Edenbridge, Kent.

255 1899. Meinertzhagen, Capt. Richard, F.Z.S.; Brookwood Park, Alresford, Hants.

1886. Millais, John Guille, F.Z.S.; Compton's Brow, Horsham.

1903. Mills, The Rev. Henry Holroyd, F.Z.S.; The Rectory, St. Stephen-in-Brannel, Grampound Road, Cornwall.

1879. Mitchell, Frederick Shaw; Hornshaws, Millstream, Vancouver Island, British Columbia.

1901. Mitchell, P. Chalmers, M.A., D.Sc., LL.D., F.R.S., F.Z.S.; Secretary to the Zoological Society of London, 3 Hanover Square, W.

260 1897. Mitchell, William; 5 Bury Street, St. James's, S.W.

1904. Mitchell-Carruthers, Aleaxnder Douglas; Holbrook Rectory, Ipswich.

1898. Monro, Horace Cecil, C.B.; Queen Anne's Mansions, Queen Anne's Gate, S.W.

1900. Montagu, Edwin S., M.P.; 12 Kensington Palace Gardens, W.

1906. Moore, Major Cyril H.; District Pay Office, Gibraltar.

265 1886. Muirhead, George; Speybank, Fochabers, Moray, N.B.

Date of Election.

1893. Mullens, Major William H., M.A., F.Z.S.; 9 St. James's Place, S.W.

1892. Munn, Philip Winchester, F.Z.S.; Laverstoke, Whitchurch, Hants.

1897. Munt, Henry, F.Z.S.; 83 Kensington Gardens Square, W.

1900. Musters, John Patricius Chaworth, D.L., J.P.; Annesley Park, Nottingham.

270 1907. Neave, Sheffield Airey; Mill Green Park, Ingatestone, Essex.

1882. Nelson, Thomas Hudson; The Cliffe, Redcar, Yorkshire.

1895. Nesham, Robert, F.Z.S., F.E.S.; Utrecht House, Queen's Road, Clapham Park, S.W.

1897. Neumann, Oscar, C.M.Z.S.; 46 Wielandstrasse, Charlottenburg, Berlin, Germany.

1872. Newcome, Francis D'Arcy William Clough; Thurston Lodge, Bury St. Edmunds, Suffolk.

275 1904. Newman, Thomas Henry, F.Z.S.; Newlands, Harrowdene Road, Wembley, Middlesex.

1886. Nicholls, Howard Hill John, M.R.C.S.; Bramber Lodge, Downview Road, West Worthing.

1902. Nichols, John Bruce, F.Z.S.; Parliament Mansions, Victoria Street, S.W.

1900. Nichols, Walter Buchanan; Stour Lodge, Bradfield, Manningtree, Essex.

1876. Nicholson, Francis, F.Z.S.; The Knoll, Windermere.

280 1902. Nicoll, Michael John, F.Z.S.; Zoological Gardens, Gizeh, Cairo.

1904. Noakes, Wickham; Selsdon Park, Croydon.

1895. Noble, Heatley, F.Z.S.; Temple Combe, Henley-on-Thames.

1892. Ogilvie, Fergus Menteith, M.A., F.Z.S.; The Shrubbery, 72 Woodstock Road, Oxford.

1890. Ogilvie-Grant, W. R., F.Z.S.; British Museum (Natural History), Cromwell Road, S.W.

285 1889. Ogle, Bertram Savile; Hill House, Steeple Aston, Oxford.

1907. Oldham, Charles; Essex House, Watford.

1906. Osmaston, Bertram Beresford (Imperial Forest Service, India); c/o Messrs. Grindlay & Co., Calcutta, India.

1883. Parker, Henry, C.E.; Whitbourne Lodge, Manby Road, Great Malvern.

Date of
Election.

1879. Parkin, Thomas, M.A., F.Z.S.; Fairseat, High Wickham, Hastings.

290 1891. Patterson, Robert; Glenbank, Holywood, Co. Down.

1904. Pearse, Theed; Mentmore, Ampthill Road, Bedford.

1894. Pearson, Charles Edward, F.L.S.; Hillcrest, Lowdham, Notts.

1891. Pearson, Henry J., F.Z.S.; Bramcote, Notts.

1902. Pease, Sir Alfred Edward, Bt., F.Z.S.; Pinchinthorpe House, Guisborough, Yorkshire; and Brooks's Club, St. James's Street, S.W.

295 1898. Penn, Eric Frank; Taverham Hall, Norwich.

1891. Penrose, Francis George, M.D., F.Z.S.; Wick House, Downton, Salisbury, Wilts.

1900. Percival, Arthur Blayney, F.Z.S.; Game-Ranger, Nairobi, British East Africa Protectorate; and Somerset Court, Brent Knoll, Somerset.

1907. Percy, Lord William; 2 Grosvenor Place, S.W.; and Alnwick Castle, Alnwick, Northumberland.

1886. Phillips, E. Lort, F.Z.S.; 79 Cadogan Square, S.W.

300 1888. Phillips, George Thorne; Wokingham, Berkshire.

1893. Pigott, Sir Thomas Digby, K.C.B.; 5 Ovington Gardens, S.W.

1893. Pike, Thomas Mayer, M.A.; c/o Mr. R. H. Porter, 7 Prince's Street, Cavendish Square, W.

1907. Pocock, Reginald Innes, F.L.S., F.Z.S.; Superintendent of the Zoological Gardens, Regent's Park, N.W.

1905. Pollard, Capt. Arthur Erskine St. Vincent (The Border Regiment); Royal Military College, Camberley, Surrey; and Naval and Military Club, Piccadilly, W.

305 1896. Popham, Hugh Leyborne, M.A.; 14 Arlington Street, St. James's, S.W.

1898. Price, Athelstan Elder, F.Z.S.; 61 Great Cumberland Place, W.

1903. Proctor, Major Frederick William (late West Riding Regt.); Downfield, Maidenhead.

1901. Proud, John T.; Dellwood, Bishop Auckland.

1893. Pycraft, William Plane, F.Z.S.; British Museum (Natural History), Cromwell Road, S.W.

310 1888. Radclyffe, Charles Robert Eustace; Hyde, Wareham, Dorset.

1903. Ralfe, Pilcher George; The Parade, Castletown, Isle of Man.

1903. Ratcliff, Frederick Rowlinson; 24 Lancaster Gate, W.

Date of Election.

1906. Rattray, Col. Rullion Hare; 68 Dry Hill Park, Tonbridge, Kent.

1879. Rawson, Herbert Evelyn; Comyn Hill, Ilfracombe.

315 1894. Read, Richard Henry, L.R.C.P., M.R.C.S.; Church Street, Hanley, Staffordshire.

1888. Read, Robert H.; 8*a* South Parade, Bedford Park, W.

1877. Reid, Capt. Savile G. (late R.E.), F.Z.S.; The Elms, Yalding, Maidstone.

1903. Renaut, William E.; 15 Grafton Square, Clapham, S.W.

1907. Richmond, Herbert William; King's College, Cambridge.

320 1895. Rickett, Charles Boughey, F.Z.S.; Upton House, Lostwithiel, Cornwall.

1896. Rippon, Lt.-Col. George, F.Z.S.; 89th Punjabis, P.O. Kalaw, Southern Shan States, Upper Burma.

1907. Ritchie, Archibald Thomas Ayres; The Head Master's, Harrow; and Overstrand, near Cromer.

1902. Riviere, Bernard Beryl; 82 Finchley Road, N.W.

1898. Robinson, Herbert C., C.M.Z.S.; Selangor State Museum, Kuala Lumpur, Federated Malay States.

325 1896. Rogers, Major J. Middleton, F.Z.S. (late 1st Dragoons); Riverhill, Sevenoaks, Kent.

1893. Rothschild, The Hon. L. Walter, D.Sc., M.P., F.Z.S.; The Zoological Museum, Tring, Herts.

1894. Rothschild, The Hon. N. Charles, F.Z.S.; Tring Park, Tring, Herts.

1907. Russell, Conrad George Edward, F.Z.S.; 2 Audley Square, W.

1883. St. Quintin, William Herbert, F.Z.S.; Scampston Hall, Rillington, Yorkshire.

330 1903. Sandeman, Capt. Robert Preston (late 10th Hussars); Dan-y Park, Crickhowell.

1899. Sapsworth, Arnold Duer, F.Z.S.; National Liberal Club, Whitehall Place, S.W.

1902. Sargeaunt, Arthur St. George; 83 Madeley Road, Ealing, W.

1904. Sargent, James; 76 Jermyn Street, S.W.; and 2 Napier Villas, Cambridge Road, Barnes.

1870. Saunders, Howard, F.L.S., F.Z.S.; 7 Radnor Place, Hyde Park, W. (*Secretary.*)

335 1902. Saunders, William Henry Radcliffe, C.E., F.Z.S.; 79 Warwick Road, S.W.

Date of Election.

1898. Scherren, Henry, F.Z.S.; 9 Cavendish Road, Harringay, N.

1907. Schwann, Geoffrey; 4 Prince's Gardens, S.W.

1905. Schwann, Harold, F.Z.S.; Portiscliff, Ferryside, South Wales.

* 1858. Sclater, Philip Lutley, D.Sc., F.R.S., F.Z.S.; Odiham Priory, Winchfield, Hants; and Athenæum Club, Pall Mall, S.W. (*Joint Editor.*)

340 1891. Sclater, William Lutley, M.A., F.Z.S.; P.O. Box 1207, Colorado Springs, Colorado, U.S.A.

1907. Scott, The Rev. Canon Samuel Gilbert, M.A.; The Rectory, Havant, Hants.

1899. Selous, Frederick Courteney, F.Z.S.; Heatherside, Worplesdon, Surrey.

1889. Senhouse, Humphrey Patricius, B.A.; The Fitz, Cockermouth, Cumberland.

1899. Serle, The Rev. William, M.A., B.D.; The Manse, Duddingston, Edinburgh.

345 1900. Service, Robert: Maxwelltown, Dumfries.

1901. Seth-Smith, David, F.Z.S.; 14 Canning Road, Addiscombe, Croydon.

1904. Seth-Smith, Leslie Moffat, B.A.; Alleyne, Caterham Valley, Surrey.

1899. Sharman, Frederic, F.Z.S.; 47 Goldington Road, Bedford.

1871. Sharpe, Richard Bowdler, LL.D., F.L.S., F.Z.S.; Assistant Keeper, Zoological Department, British Museum (Natural History), South Kensington, S.W.

350 1870. Shelley, Capt. G. Ernest, F.Z.S. (late Grenadier Guards); 39 Egerton Gardens, South Kensington, S.W.

1865. Shepherd, The Rev. Charles William, M.A., F.Z.S.; Trottiscliffe Rectory, Maidstone, Kent.

1900. Simey, Athelstane Iliff; 31 Finsbury Square, E.C.

1902. Smith, Abel Henry, M.P.; Woodhall Park, Hertford.

1906. Snouckaert van Schauburg, Baron René Charles; Neerlangbrock, Holland.

355 1896. Sondes, George Edward, Earl, F.Z.S.; Lees Court, Faversham.

1881. Southwell, Thomas, F.Z.S.; 10 The Crescent, Chapel Field, Norwich.

1903. Sparrow, Major Richard; 7th Dragoon Guards, Canterbury; and Rookwoods, Sible Hedingham, Essex.

Date of
Election.

1906. Stanford, Surgeon Charles Edward Cortis, B.Sc., M.B., R.N.; Glenwood, Dalmuir, Dumbartonshire.

1893. Stanley, Samuel S.; Fair View House, Harbury, Leamington, Warwickshire.

360 1900. Stares, John William Chester; Portchester, Hants.

1902. Stenhouse, John Hutton, M.B., R.N.; c/o Messrs. Woodhead & Co., 44 Charing Cross, S.W.

1906. Steward, Edward Simmons, F.R.C.S.; 10 Prince's Square, Harrogate, Yorks.

1898. Stirling, William, J.P., D.L.; Ord House, Muir of Ord, N.B.

1893. Stonham, Charles, C.M.G., F.R.C.S., F.Z.S.; 4 Harley Street, Cavendish Square, W.

365 1881. Studdy, Col. Robert Wright (late Manchester Regiment); Waddeton Court, Brixham, Devon.

1887. Styan, Frederick William, F.Z.S.; Ben Craig, Bayham Road, Sevenoaks; and Shanghai, China.

1887. Swinburne, John; Haenertsburg, Transvaal, S. Africa.

1882. Swinhoe, Col. Charles, M.A., F.L.S., F.Z.S.; 19 Cecil Court, Redcliffe Gardens, S.W.; and Savile Club, 107 Piccadilly, W.

1884. Tait, William Chaster, C.M.Z.S.; Entre Quintas 155, Oporto, Portugal.

370 1905. Taylor, Lionel E., F.Z.S.; Superintendent of Government Nurseries, Irene District, Pretoria. Transvaal.

1873. Tegetmeier, William Bernhard, F.Z.S.; 16 Alexandra Grove, North Finchley, N.

1889. Tennant, Sir Edward Priaulx, Bt., M.A, M.P., F.Z.S.; 34 Queen Anne's Gate, S.W.; and The Glen, Innerleithen, N.B.

1886. Terry, Major Horace A. (late Oxfordshire Light Infantry); The Lodge, Upper Halliford, Shepperton.

1904. Thompson, Lieut. William R., R.G.A.; Work Point Barracks, Victoria, B. Columbia.

375 1900. Thorburn, Archibald, F.Z.S.; High Leybourne, Hascombe, near Godalming, Surrey.

1893. Thorpe, Dixon L.; Loshville, Etterby Scaur, Carlisle.

1903. Ticehurst, Claud Buchanan; Winstowe, St. Leonards-on-Sea; and The College, Guy's Hospital, S.E.

1894. Ticehurst, Norman Frederic, M.A., M.B., F.R.C.S., F.Z.S.; 35 Pevensey Road, St. Leonards-on-Sea.

Date of Election.

1902. Townsend, Reginald Gilliat, M.A.; Buckholt, Dean, Salisbury.

380 1893. Trevor-Battye, Aubyn, F.Z.S.; Chilbolton, Hants.

1906. Tuke, Charles Molesworth; The Gate House, Chiswick.

1864. Upcher, Henry Morris, F.Z.S.; Sheringham Hall, Norfolk.

1894. Ussher, Richard John; Cappagh House, Cappagh, S.O., Co. Waterford, Ireland.

1907. Van Oort, Dr. Eduard Daniel; Museum of Natural History, Leyden, Holland.

385 1906. Vaughan, Lt.-Commdr. Robert E., R.N.; H.M.S. 'Moorhen,' Hong Kong.

1890. Venour, Stephen; Fern Bank, Altrincham, Cheshire.

1884. Verey, Alfred Sainsbury; Heronsgate, near Rickmansworth.

1881. Verner, Col. William Willoughby Cole; Hartford Bridge, Winchfield, Hants; and United Service Club, S.W.

1902. Wade, Edward Walter; Vittoria Hotel, Hull.

390 1886. Wade-Dalton, Col. H. D.; Hauxwell Hall, Finghall, R.S.O., Yorkshire.

1895. Wallis, Henry Marriage; Ashton Lodge, Christchurch Road, Reading.

1881. Walsingham, Thomas, Lord, F.R.S., F.Z.S.; Merton Hall, Thetford, Norfolk.

1899. Walton, Capt. Herbert James, M.B., F.R.C.S., I.M.S., C.M.Z.S.; c/o Messrs. King, King & Co., Bombay.

1872. Wardlaw-Ramsay, Lt.-Col. R. G., F.Z.S.; Whitehill, Rosewell, Midlothian, N.B.

395 1896. Watkins, Watkin, F.Z.S.; Highfield, Harrow; and Wellington Club, S.W.

1903. Watt, Hugh Boyd; 3 Willow Mansions, Fortune Green Road, West Hampstead, N.W.

1906. West, Colin, F.Z.S.; The Grange, South Norwood Park, S.E.

1900. Westell, William Percival, F.R.H.S.; 11 Glenferrie Road, St. Albans, Herts.

1891. Whitaker, Benjamin Ingham; Hesley Hall, Tickhill, Rotherham.

400 1891. Whitaker, Joseph I. S., F.Z.S.; Malfitano, Palermo, Sicily.

1903. White, Stephen Joseph, F.Z.S.; Oakwood, Crayford, Kent.

1903. Whitehead, Charles Hugh Tempest; Deighton Grove, York.

Date of Election.

1887. Whitehead, Jeffery, F.Z.S.; Mayes, East Grinstead, Sussex.

1897. Whymper, Charles, F.Z.S.; 7 James Street, Haymarket, S.W.

405 1898. Wigglesworth, Joseph, M.D., F.R.C.P.; Rainhill, near Liverpool.

1894. Wilkinson, Johnson; St. George's Square, Huddersfield, Yorkshire.

1904. Williams, Major Charles Louis, M.D., I.M.S.; 17 Alexandra Road, Birkenhead.

1896. Williams, Capt. Lionel Arthur, F.Z.S.; Junior United Service Club, Charles Street, St. James's, S.W.

1897. Wilson, Allan Read, B.A., M.B., B.Ch.; Bloxham, Oxon.

410 1888. Wilson, Charles Joseph; 34 York Terrace, Regent's Park, N.W.

1900. Wilson, Dr. Edward Adrian, F.Z.S.: Westal, Cheltenham.

1887. Wilson, Scott Barchard, F.Z.S.; Heatherbank, Weybridge Heath, Surrey.

1897. Witherby, Harry Forbes, F.Z.S.; 11 Hereford Mansions, Hereford Road, Bayswater, W.

1899. Wollaston, Alexander Frederick Richmond, B.A.; 19 Upper Gloucester Place, Dorset Square, N.W.

415 1907. Wood, Rodney Carrington; 36 Abercorn Place, St. John's Wood, N.W.

1902. Workman, William Hughes; Lismore, Windsor, Belfast.

1871. Wright, E. Perceval, M.D., F.L.S., C.M.Z.S., Professor of Botany in the University of Dublin.

1891. Wright, Thomas, M.D.; Castle Place, Nottingham.

1904. Wright, William Crawford; Charlevoix, Marlborough Park, Belfast.

420 1895. Yerbury, Lt.-Col. John William (late R.A.), F.Z.S.; 8 Duke Street, St. James's, S.W.; and Army and Navy Club, S.W.

1889. Young, Capt. James B., R.N.; Tytherley, Wimborne, Dorset.

1897. Young, John Joseph Baldwin, M.A.; Richmond Park, near Sheffield.

Extra-Ordinary Members.

1899. Godwin-Austen, Lt.-Col. Henry Haversham, F.R.S., F.Z.S.; Nore, Hascombe, Godalming.

1860. Wallace, Alfred Russel, F.R.S., F.Z.S.; Broadstone, Wimborne, Dorset.

Honorary Members.

Date of Election.

1907. Allen, Joel Asaph, Ph.D., F.M.Z.S.; American Museum of Natural History, Central Park, New York, U.S.A.

1886. Ayres, Thomas; Potchefstroom, Transvaal, South Africa.

1890. Berlepsch, Graf Hans von, C.M.Z.S.; Schloss Berlepsch, Post Gertenbach, Witzenhausen, Germany.

1900. Collett, Prof. Robert, F.M.Z.S.; University Museum, Christiania.

5 1870. Finsch, Dr. Otto, C.M.Z.S.; Altewiekring 19^{e}, Brunswick, Germany.

1894. Giglioli, Dr. Henry Hillyer, F.M.Z.S.; Reale Istituto di Studi Superiori, Florence.

1898. Goeldi, Dr. Emil A., C.M.Z.S.; Zieglerstrasse 36, Berne, Switzerland.

1893. Reichenow, Dr. Anton, C.M.Z.S.; Museum für Naturkunde, Invalidenstrasse, Berlin.

1903. Ridgway, Robert, C.M.Z.S.; Smithsonian Institution, Washington, D.C., U.S.A.

10 1890. Salvadori, Count Tommaso, M.D., F.M.Z.S.; Royal Zoological Museum, Turin.

Colonial Members.

1904. Campbell, Alfred J.; Custom House, Melbourne, Australia.

1903. Legge, Col. W. Vincent, F.Z.S.; Cullenswood House, St. Mary's, Tasmania.

1905. Macoun, John, M.A., F.R.S.C.; Naturalist to the Geological Survey of Canada, Ottawa, Canada.

1905. Millar, Alfred Duchesne; 298 Smith Street, Durban, Natal.

5 1903. North, Alfred J., C.M.Z.S.; Australian Museum, Sydney, N.S.W.

1907. Swynnerton, Charles Francis Massy; Gungunyana, Melsetter, South Rhodesia.

Foreign Members.

1900. Bianchi, Dr. Valentine; Imperial Zoological Museum, St. Petersburg.

Date of Election.

1904. Blasius, Geh. Hofr. Prof. Dr. Wilhelm, C.M.Z.S.; Gauss-Strasse, 17, Brunswick, Germany.

1872. Bocage, Prof. J. V. Barboza du, F.M.Z.S.; Royal Museum, Lisbon.

1880. Bureau, Louis, M.D.; École de Médecine, Nantes, France.

5 1906. Büttikofer, Dr. Johannes, C.M.Z.S.; Director of the Zoological Garden, Rotterdam, Holland.

1906. Buturlin, Sergius A.; Wesenberg, Esthonia, Russia.

1902. Chapman, Frank Michler; American Museum of Natural History, Central Park, New York, U.S.A.

1875. Doria, Marchese Giacomo, F.M.Z.S.; Strada Nuova, 6, Genoa, Italy.

1902. Ihering, Dr. Herman von, C.M.Z.S.; Museu Paulista, São Paulo, Brazil.

10 1886. Madarász, Dr. Julius von; National Museum, Buda-Pesth.

1903. Martorelli, Prof. Dr. Giacinto; Museo Civico di Storia Naturale, Milan, Italy.

1894. Menzbier, Prof. Dr. Michael, C.M.Z.S.; Imperial Society of Naturalists, Moscow.

1881. Meyer, Dr. Adolf Bernhard, C.M.Z.S., c/o Messrs. Friedlander & Sohn, Carlstrasse, 11, Berlin.

1905. Oberholser, Harry Church; Biological Survey, Department of Agriculture, Washington, D.C., U.S.A.

15 1900. Reiser, Dr. Otmar; Landes Museum, Sarajevo, Bosnia, Austro-Hungary.

1894. Schalow, Herman; Flensburgerstrasse, 15, Berlin, N.W. 23.

1900. Stejneger, Leonhard, C.M.Z.S.; Smithsonian Institution, Washington, D.C., U.S.A.

1902. Sushkin, Dr. Peter, C.M.Z.S.; Imperial University, Moscow, Russia.

1896. Winge, Herluf, C.M.Z.S.; University Zoological Museum, Copenhagen.

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NINTH SERIES.

No. I. JANUARY 1907.

I.—*Field-Notes on the Birds of Chinkiang, Lower Yangtse Basin.*—Part III.[*] By J. D. D. La Touche, C.M.Z.S., M.B.O.U.

116. Dendrocopus cabanisi Malh.

Styan, Ibis, 1891, p. 482.

A common resident species, breeding in April and May. Nearly all the adults obtained by me at Chinkiang shew some spots of white on the scapulars, and all have a more or less white edging to the feathers of the lower back. The spots on the wings and the white patch on the upper wing-coverts are much larger than in Fohkien examples of this Woodpecker. The three outer pairs of rectrices are generally somewhat narrowly barred (in fact, often only spotted) with black. A young bird shot on June 10 has the longest scapulars tipped with white and the primaries broadly tipped with the same colour.

I have been unable as yet to secure any authentic eggs. Some fragments were taken on May 13 from a nest which contained young birds, and I have one egg, found on the ground on May 17 under some trees riddled with Woodpeckers' holes, which I can only refer to this species. It is but slightly glossy, the texture of the shell resembling that of the fragments previously obtained. It is rather narrowly ovate and measures 1·07×0·80″. This egg is quite uninjured, save for two tiny punctures. As it is unlikely that it had been laid on the ground, it had probably been carried off by a rat, which had dropped it on being disturbed by our approach.

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[*] Continued from 'The Ibis,' 1906, p. 641.

117. Iyngipicus scintilliceps (Swinhoe).
Styan, Ibis, 1891, p. 482.

The Spark-headed Woodpecker is a resident with us, but is not so common as the Green and Pied species. I have seen it all the year round on the plain, but have not been able to procure any eggs. Specimens shot at Chinkiang shew more white than those from Fohkien, and the stripes on the under parts are slightly narrower.

118. Gecinus canus (L.).

I shot an adult female on November 30, 1902.

This district is, no doubt, the southernmost limit of this Woodpecker in Eastern China.

119. Gecinus guerini (Malh.).
Styan, Ibis, 1891, p. 482.

This is the commonest Woodpecker about Chinkiang. It breeds in April, but I have never succeeded in finding a nest-hole with eggs.

On placing a series of Fohkien Green Woodpeckers side by side with a series of *G. guerini* shot at Chinkiang, it appears evident that the Fohkien bird is a well-marked and sufficiently constant form of *G. guerini* (Malh.), and that it may well stand as *Gecinus tancola* Gould. To my mind there is no more reason for uniting *G. tancola* Gould with *G. guerini* Malh. than there would be for suppressing *G. guerini* and calling it *G. canus*, or for uniting the Green Woodpecker of Fohkien with *G. occipitalis*. These four forms intergrade almost completely. I have a Green Woodpecker from Fohkien which I could hardly distinguish from specimens of *G. occipitalis* at the British Museum, and I have also specimens of *G. guerini* from Chinkiang which can only be distinguished from *G. canus* by the presence of a few black marks on the crown and nape.

Considered as a whole, however, the Fohkien birds are quite distinct from the Chinkiang birds, just as taken collectively *Gecinus guerini* is distinct from *G. canus*, and *G. tancola* of Fohkien differs from the southern *G. occipitalis*. This is proved by my series of Green Woodpeckers from Fohkien and Chinkiang.

Nearly every specimen of *G. guerini* obtained by me at Chinkiang is noticeably lighter in colour than those from Fohkien. The upper parts in Chinkiang birds are of a lighter green, often with a wash of grey, and the lower parts are yellowish grey-green in place of the darker green of the southern birds. The malar stripe is almost invariably smaller; in the female sometimes almost absent. In the male the crown behind the red patch is grey, streaked, generally very lightly, with black, and the nuchal spot is seldom so extensive as in Fohkien birds, being sometimes very small and brownish in colour. One bird shot on April 21 has a large black nuchal patch as in specimens from Fohkien, but there is hardly any black round the red patch, and the under parts resemble those of the normal Chinkiang bird. In the female the difference is still more strongly marked. The general coloration is very much lighter, the moustache is very slight, the head is greenish grey lightly streaked with brownish or black, and the nuchal patch is small. There is generally a trace, often well marked, of obsolete bars on the secondaries. In one of my female specimens from Chinkiang, which is dated November 17, there is no proper nuchal patch, only a few feathers of the nape being brownish black. In another, dated December 30, the crown is but faintly streaked and the nape-feathers are tipped or centred with brownish black; while the malar stripe consists of two or three blackish feathers.

The average Chinkiang bird is therefore typical *G. guerini* Malh., but specimens are obtained in this locality which intergrade with the northern *G. canus*, and sometimes, but more rarely, we find others which come very close to the southern form. On the other hand, the Fohkien Green Woodpecker is typical *G. tancola* Gould, as defined by Swinhoe (P. Z. S. 1863, p. 10) and by David and Oustalet ('Oiseaux de la Chine,' p. 53), and none of the specimens that I have seen approach the average Chinkiang bird. Owing to want of material from the Lower Yangtse, I did not recognise the differences in my former papers on Fohkien birds, and wrongly called the Fohkien Green Woodpecker *G. guerini* Malh. It should stand as *G. tancola* Gould.

120. PICUMNUS CHINENSIS (Hargitt).
Styan, Ibis, 1891, p. 482.

On May 15, 1903, a live example of this species taken with bird-lime was sold to me by a bird-catcher. It was active and pecked hard at my fingers, but did not live. On the 29th of May of the following year I saw another individual on the plain, climbing about a large tree. Two eggs brought to me on May 17, 1904, which the guides stated had been found in a hole in a tree, are, I have no doubt, those of this Piculet. These eggs, which were a little incubated, are pure white, smooth, highly glossy, and of a round ovate shape. They measure 0·63 × 0·51″.

121. IYNX TORQUILLA L.
Styan, Ibis, 1891, p. 483.

I have seen the Wryneck on two occasions only: namely, on April 27, 1902, when I shot two specimens, and on September 7 following, when I shot another. In each case the birds were flushed from damp or marshy ground near water. Another was seen on the first-mentioned date in a wheat-field.

122. UPUPA EPOPS L.
Styan, Ibis, 1891, p. 482.

The Hoopoe is evidently very rare at Chinkiang. I have seen only one there (in winter), on the north bank of the river. It was very wild, and when approached flew from tree to tree across the fields. The distribution of this bird on the China coast is very irregular: at Newchwang (South Manchuria) it was very common during the summer; at

Chinkiang I saw it but once, as stated above; at Foochow it is a scarce winter visitant; at Amoy it is a very common resident; at Swatow I have never seen it.

123. EURYSTOMUS CALONYX Sharpe.

Eurystomus orientalis (L.); Styan, Ibis, 1891, p. 483.

Eurystomus calonyx Sharpe; La Touche & Rickett, Ibis, 1905, p. 48.

This species passes in May, September, and October. I do not think that it breeds about Chinkiang. The collectors shot a female in very bright plumage on May 20.

124. ALCEDO BENGALENSIS Briss.

Styan, Ibis, 1891, p. 483; La Touche & Rickett, Ibis, 1905, p. 50.

Abundant and resident. On May 6 I took six eggs from a hole in the bank of a pond; on May 12 and June 16 I bought three and six eggs from natives. The latter were incubated. Nine eggs average 0·82 × 0·70″, the largest measuring 0·84 × 0·71″ and the smallest 0·80 × 0·70″.

125. HALCYON PILEATUS (Bodd.).

Styan, Ibis, 1891, p. 483; La Touche, Ibis, 1900, p. 44.

Heard in May and seen in September.

126. ACANTHYLLIS CAUDACUTA (Lath.).

Chætura caudacuta (Lath.); Styan, Ibis, 1891, p. 481.

These beautiful Swifts appear to pass regularly in May. On May 13, 1901, Mr. E. G. Byrne, of this port, shot one from a flock of about twenty which he met with in the plain while Snipe-shooting. A few days afterwards he noticed others flying about the summits of our highest hills. On May 25, 1902, the collector Wang Wang and I each shot one on the same hills. There were quite a number flying about the hill-tops and several came within gun-shot. The two which we shot were females, and measured in the flesh 8·35 and 8 in. in length. They were very fat, and the stomach of one was crammed with fragments of a large species of bug (? *Eusthenes* sp.); that of the other was equally full of insects (a kind of gold-coloured weevil). The collectors saw these Swifts several times during May, but always high in the air and out of range. They declared that these were the "Swallows" which occur at Kuatun in summer (see 'Ibis,' 1899, p. 431). In September, 1904, a number were seen flying over the paddy-fields.

127. Cypselus pacificus Lath.

Styan, Ibis, 1894, p. 334.

I have occasionally observed Swifts which were probably of this species. On August 29, 1902, I saw a number of large Swifts—no doubt *C. pacificus*—going S.E. before a storm. They were in company with Swallows.

128. Caprimulgus jotaka T. & S.

Styan, Ibis, 1891, p. 481; La Touche, Ibis, 1900, p. 41; La Touche & Rickett, Ibis, 1905, p. 50.

This species is very common in April and May in woods on the hills, and is also seen flying over the paddy-fields at dusk. It passes again in September.

129. Cuculus canorus L.

Styan, Ibis, 1891, p. 484.

The Common Cuckoo arrives towards the middle of May, and at the end of that month and during June is extremely abundant. I have often seen several individuals flying together, calling and pursuing one another. It may be heard until the end of July, but I have not noticed it in autumn.

The common form at Chinkiang is the pale variety with white narrowly barred under parts. Its call is the same as that of the European bird—"*kook-koo*" or "*kookook koo*." I have also a male, shot on May 26, which has dark upper parts. The under parts in this specimen are tinged with buff, the under tail-coverts are buff, and it has broad bars set widely apart. The wing measures 8·25 in., so that the bird is too large for *C. intermedius*. Another example, shot on May 13, is precisely similar to typical *C. intermedius* in all but size, the wing measuring 8·15 in. A number of examples of the common pale form, shot at Chinkiang, vary in length of wing from 7·75 to 9·2 in. (males) and from 7·8 to 8·85 in. (females). A Cuckoo sent me from Anhwei province by the Rev. Father Perrin, S.J., belongs to this pale form of *C. canorus.*

I have four eggs taken at Chinkiang which I attribute to *C. canorus.* One was brought to me on June 20, 1900, in a new nest of *Suthora webbiana* which contained no other egg. It is broadly ovate in shape and has a greenish creamy ground-colour. It is covered with specks, spots, and blotches of burnt sienna and reddish purple over pale purple underlying spots. The markings form an irregular ring round the larger end and are often confluent. It measures 0·84 × 0·65″. The second egg was brought to me on June 6 of the following year, with a number of other specimens. I think that it had been found in a nest of *Pycnonotus sinensis.* It is of a long ovate (nearly oval) form, and a light yellowish green colour, with a well-marked ring of very dark burnt sienna, and bright violet spots and specks over underlying violet spots. It has also a few specks of burnt sienna and violet over the rest of the egg. It measures 0·87 × 0·63″. The other two eggs were brought to me on June 20 and June 28, 1903, in nests of *Cisticola cursitans,* which contained, besides, two and five eggs respectively. These eggs, one of a long oval-ovate and the other of an oval-ovate shape, are light greyish green, spotted, chiefly on the broad half of the egg, with bright burnt sienna and purple over paler purple underlying shell-spots. The markings are generally large and irregular in shape. They measure 0·88 × 0·60″ and 0·87 × 0·65″.

Considering the numbers of nests of *Acrocephalus orientalis* which I have seen, it is strange that I should not have found a single Cuckoo's egg in any of them. The Cuckoos were always to be heard and seen about the reed-beds, and were certainly breeding there. The fact that I did not obtain any specimens was, I suppose, due to ill-luck.

130. Cuculus intermedius Vahl.

Cuculus striatus Vahl ; Styan, Ibis, 1891, p. 484.

Cuculus intermedius Vahl ; La Touche, Ibis, 1898, pp. 360, 370 ; 1900, p. 45.

The collectors shot eight specimens of this Cuckoo between the 19th and the 28th of May, 1902, so that it must have been comparatively common that year. I did not shoot any myself, and have not heard its familiar call. These eight specimens are, in all but size, exactly similar to my series from Formosa and Fohkien.

Formosa and Fohkien birds....	♂	wing	7·2	to	7·75 in.
" " "	♀	"	6·85	"	7·5 "
Chinkiang birds	♂	"	7·75	"	8 "
" "	♀	"	7·55	"	8 "

If these Chinkiang dark Cuckoos are all *C. intermedius*, then this species intergrades in *size* at Chinkiang with *C. canorus*. It seems strange that while the individuals obtained in the south are all small, none exceeding 7·75 in. in wing-measurement, several of those shot at Chinkiang are quite as large as average examples of the small pale race of *C. canorus*. The difference is specially apparent in female specimens, as will be seen from the above measurements.

131. Cuculus poliocephalus Latham.

Cuculus poliocephalus Dav. & Oust. Oiseaux de la Chine, p. 66.

This small Cuckoo is common on the hills in the latter half of May. It probably summers here at the higher elevations in suitable wooded spots. Its call, which is very loud, is composed of six syllables, and is repeated three times in succession, each time in a different tone, the second being very emphatic and the third weak and plaintive.

132. Cuculus micropterus Gould.

Styan, Ibis, 1891, p. 484.

This Cuckoo is abundant in May and June, frequenting large trees and thickets on the plain rather than wooded hills. It is very vociferous and readily answers when anyone imitates its call, which may be syllabled "*kwi-kwohkwok*" and "*kwikwi-kwohkwok.*" A female which I shot on May 26, 1901, had an egg ready for laying in the oviduct; unfortunately it was smashed to bits by the shot. In colour it was pinkish white, with round specks and spots of rich red and deep carmine about the larger end, the rest of the shell having only a few isolated spots. The general appearance, so far as could be judged from the fragments, was somewhat like that of some eggs of *Buchanga leucogenys.*

133. HIEROCOCCYX SPARVERIOIDES (Vig.).

Hierococcyx fugax (Horsf.) ; Styan, Ibis, 1891, p. 484.

Hierococcyx sparverioides (Vig.) ; Styan, Ibis, 1899, p. 288.

This large Hawk-Cuckoo arrives at the end of April, and may be heard calling in the woods on the hills throughout May. I do not think that it remains during the summer.

134. COCCYSTES COROMANDUS (L.).

Styan, Ibis, 1891, p. 484.

This Crested Cuckoo summers on the wooded hills about Chinkiang. It is not rare, but is extremely shy. The collectors shot one on May 12, and I saw another on June 20. The call is dissyllabic and may be written "*kük-kük*."

135. BUBO IGNAVUS (Forster).

Styan, Ibis, 1891, p. 485.

A resident species. It is said by natives to nest on ledges of rocks on the highest hills. A young bird was brought to me on April 20.

136. SCOPS SEMITORQUES T. & S.

Styan, Ibis, 1891, p. 485.

Styan mentions this Owl as having been taken at Chinkiang. I have never seen it there.

137. ASIO OTUS (L.).

Styan, Ibis, 1891, p. 486.

A specimen of this Owl, shot on April 5, was given to me by a friend. It is a female; the largest ova were about the size of a No. 6 shot.

138. ASIO ACCIPITRINUS (Pall.).

Styan, Ibis, 1891, p. 486.

I have a specimen of the Short-eared Owl shot in autumn by a friend.

139. GLAUCIDIUM WHITELYI (Blyth).
Styan, Ibis, 1891, p. 485; La Touche & Rickett, Ibis, 1905, p. 52.

On May 29, 1904, I shot two young birds not long out of the nest. I had never before identified this species with certainty at Chinkiang, but I had seen in the woods on one or two occasions small Owls which may have belonged to it. It is probably a very scarce resident in this part of the Lower Yangtse basin.

140. NINOX SCUTULATA (Raffles).
Styan, Ibis, 1891, p. 486.

I shot one example on May 26, and the collectors another on April 29.

141. PANDION HALIAËTUS (L.).
Styan, Ibis, 1891, p. 486.

I believe that I have once seen the Osprey flying over the Chinkiang hills.

142. CIRCUS CYANEUS (L.).
Styan, Ibis, 1891, p. 487.

Occurs in winter.

143. CIRCUS ÆRUGINOSUS (L.).
Styan, Ibis, 1891, p. 486.

I believe that I have seen the Marsh-Harrier during winter, but I did not obtain any specimens.

144. CIRCUS SPILONOTUS Kaup.
Styan, Ibis, 1891, p. 486.

Not uncommon in winter.

145. CIRCUS MELANOLEUCUS (Forster).
Styan, Ibis, 1891, p. 486.

I have on one or two occasions seen a Harrier which appeared to be of this species.

146. BUTEO PLUMIPES (Hodgs.).
Styan, Ibis, 1891, p. 487.

Common in winter.

147. Buteo hemilasius T. & S.

Styan, Ibis, 1891, p. 487.

Seen in winter flying over bare reed-fields. I have a fine example shot at Ngankin (Anhwei Province) by Mr. A. L. Pichon, Imp. Mar. Customs Service.

148. Aquila clanga Pall.

Styan, Ibis, 1891, p. 487.

The first intimation that I had of Eagles breeding at Chinkiang was on May 5, 1901, when the local pig-trackers brought me a very richly-coloured Eagle's egg, taken from an eyrie situated on one of the highest hills in the neighbourhood. On May 11 of the following year I sent the Fohkien collectors to the eyrie, where they found two eggs and shot the female. The nest, made of sticks and lined with fresh tufts of pine, was on a ledge on the precipitous side of the hill, which is here a perpendicular rocky wall some thirty or forty feet high, rising abruptly from the steep slope below it. The ledge was, however, easily accessible from above, being only a short way down from the top of the hill. It was backed by a wall of rock some ten feet in height and overshadowed by a small tree (*Rhus* sp.) which grew from the back. The egg obtained on May 5, 1901, is broad and almost oval in shape and measures 2·55 × 2·07″. The ground-colour is greenish white; it has an irregular cap of reddish-brown (almost madder-brown) confluent blotches on the smaller end, with spots and specks of the same colour on the rest of the shell. It was slightly incubated. One of the eggs taken on May 11, 1902, is very like the former, but the cap is on the larger end, and there are large longitudinal splashes over the greater part of the shell. In shape it is oval-ovate and it measures 2·66 × 2·08″. The other egg of the clutch is of a long oval-ovate shape and measures 2·70 × 2·05″. It has a large cap of washed-out red and violet on the larger end extending halfway down one side. The rest of the shell is spotted and splashed with the same washed-out red and violet. These eggs were also a little incubated.

The female shot by the collectors agrees well in measurements with a bird in spotted plumage from Foochow.

I do not know whether this species is common or not. The only Eagle noticed near Chinkiang in winter is *H. albicilla*, but a few miles further up the river I have seen another kind, though too far off to identify. The Chinkiang eyrie was deserted after the death of the female, but as in the following year I saw Eagles circling over the hill, they probably continued to breed in the neighbourhood.

149. HALIAËTUS ALBICILLA (L.).

Styan, Ibis, 1891, p. 488.

Often seen soaring over the flooded paddy-fields during winter.

150. MILVUS MELANOTIS T. & S.

Styan, Ibis, 1891, p. 490; La Touche & Rickett, Ibis, 1905, p. 54.

This species is abundant and resident. It breeds in April and May, the nests at Chinkiang being often placed in easily accessible situations. Many pairs build in the pinewoods, and I have also taken eggs from ledges of rocks on the tops of the hills. I have two obtained from a nest built in the chimney of a foreign house on the Concession. Eggs taken at Chinkiang are, like those from Foochow, very variable.

151. ASTUR CUCULOIDES (Temm.).

Styan, Ibis, 1891, p. 488.

An adult male which I shot on May 12 resembles examples in the British Museum. It has very little red on the under parts, and the axillaries and under wing-coverts are pure white. Its stomach contained lizards. The testes were well developed. Small Hawks of this or the following species were numerous on the day when I shot this example.

152. ASTUR SOLOËNSIS (Lath.).

Styan, Ibis, 1891, p. 488.

A very handsome series of this small Goskawk, consisting of an adult male, three adult females, and three young males assuming the adult dress, was shot by the collectors on May 10, 13, 14, 16, and 19. The species appears to be common during that month, but I have not noticed it in summer. All these seven birds have the under wing-coverts and axillaries more or less tinged with buff, and the females are suffused with rusty red all over the under parts. The soft parts, &c., of a young male shot on May 19 are:—Iris dark orange blotched with brown; cere orange; base of bill bluish; culmen and nearly all the upper mandible greyish brown; legs orange. Wing 7·45 in. Total length 11·3 in.

153. ACCIPITER NISUS (L.).

Styan, Ibis, 1891, p. 488.

Common from September to April.

154. ACCIPITER GULARIS T. & S.

Accipiter nisoides Blyth; La Touche, Ibis, 1898, p. 372.

An adult male and an adult female were shot on May 7 and 9 by the collectors.

Soft parts, &c., are—Male: Iris crimson; cere, rim of eyelids, and legs yellow; bill blue, tipped with blackish. Wing 6·4 in.; 4th primary longest, 3rd and 5th primaries nearly equal. Total length 10·55 in.

Female: Legs yellow. Wing 7·65 in.; 4th primary longest, 3rd primary intermediate between 4th and 5th.

On October 21, 1904, I bought from a native what appeared to be a young female of this species. This bird, which I brought back to Europe, has since died in London at the Zoological Gardens. It had been trained to catch birds and was extremely gentle and tame. Its iris and feet were yellow. I unfortunately neglected to take measurements, but it seemed to agree well with a young female obtained in Formosa.

155. FALCO COMMUNIS (Gm.).

Styan, Ibis, 1891, p. 489.

Common in winter up to at least the end of April. This species or *F. peregrinator* probably breeds here.

156. Falco subbuteo L.

Styan, Ibis, 1891, p. 489; La Touche & Rickett, Ibis, 1905, p. 55.

Passes in May and September, at which periods it is to be seen circling over the hills.

157. Falco regulus Pall.

Styan, Ibis, 1891, p. 489.

Fairly common in winter.

158. Cerchneis saturata (Blyth).

Falco tinnunculus saturatus (Blyth); La Touche, Ibis, 1900, p. 48.

Cerchneis saturata (Blyth); Grant, Ibis, 1900, p. 601.

This dark Kestrel is a common resident in our part of the Lower Yangtse Valley. It breeds every year at, or quite close to, Chinkiang, but I was only able to procure the eggs once. In 1903 a pair established themselves in a circular niche in the wall of a foreign house on the British Concession. They took possession of this spot in March, and on the 5th of April following one egg had been laid. On the 11th of April there were four eggs. The niche where the birds were nesting was closed at the back by a disk of wood and was easily reached from the verandah. When I went up to the nest the female was sitting, quite undisturbed by the sound of voices in the verandah, but flew off when the back of the hole was gently tapped. Three of the eggs were lying close together, and the fourth a little further off. The building-material consisted of a very small quantity of paper in little crumpled bits, probably used to prevent the eggs from rolling out. The occupier of the house would not allow me to take the whole clutch, as he wished the birds to continue to breed there, so I took two eggs, depositing in their place a small hen's egg. On leaving the house I saw the Falcon return to her eggs holding something in her bill. She perched for a short time on the edge of the niche screaming violently, then flew off, and a few minutes after was preening her feathers unconcernedly on a neighbouring roof. She was sitting again that afternoon and subsequently laid another egg; but the nest came to grief some time afterwards, and the birds left. They were about the Concession the following year, and were said to have made trial of a Magpie's nest in a tree on the Bund, but they did not remain, and bred somewhere out of the town.

One of the eggs taken has the ground-colour white, very thickly covered and almost obscured by specks and spots of pale brick-red. Over this there are specks, spots, and blotches of deep blood-red of several shades. It is ovate, with blunt and rounded apex, and measures 1·61 × 1·30″. The other egg is speckled, mottled, and blotched with deep brownish red of several shades, and is browner than the first. It is oval-ovate in shape and measures 1·62 × 1·30″. The two eggs left in the niche resembled the latter.

I have five examples of this Kestrel from the district—an adult male shot at Nanking in winter by M. Lequerré, a French naval officer; an adult male shot by me in winter at Chinkiang; and two females and an immature male also shot at Chinkiang in summer and autumn. One of these females has the crown and nape of a uniform dark brown colour, the interscapular region and back also dark brown, with a very few inconspicuous buffish-red incomplete bars or spots; the wing-coverts, scapulars, and tertiaries of a slightly lighter brown, with a few narrow and incomplete bars of buffish red. The other female, also a very dark bird, is more regularly and closely barred with reddish.

Three live birds seen in the possession of natives, and all the wild birds seen at sufficiently close quarters, appeared to me to be also dark birds. I have never seen at Chinkiang the European *C. alaudarius* or the South Chinese and Japanese *C. japonicus*. A few individuals of the former visit Fohkien in winter, and the latter is the common form of Kestrel there during the cold season.

159. ERYTHROPUS AMURENSIS Gurney.

I have an adult male shot on April 27, 1901, by Mr. Gibson, R.N., then a midshipman on H.M.S. 'Dido.' It is the only specimen that I have seen from Chinkiang. This

Falcon strays down to Fohkien, where Rickett and I each procured an example, as noted in the 'Ibis' (1903, p. 218).

160. Turtur rupicola (Pall.).
Styan, Ibis, 1891, p. 498; La Touche & Rickett, Ibis, 1905, p. 57.

Abundant and resident, appearing in flocks on the plain during winter. It breeds throughout the spring and probably right through the summer. Nine eggs taken on April 25, May 5 and 14, and July 11 and 13 average 1·32 × 0·97″. They range in length from 1·29″ to 1·36″, and in breadth from 0·95″ to 1″. The eggs of this Dove are oval, generally with one end pointed.

161. Turtur chinensis (Scop.).
Styan, Ibis, 1891, p. 498: La Touche & Rickett, Ibis, 1905, p. 57.

Abundant and resident. I have obtained eggs all through the spring and summer. On May 24 I found a Dove of this kind sitting on two much-incubated eggs in an old nest of *Dryonastes perspicillatus* placed on a bamboo some twelve feet above the ground. A nest with two fresh eggs, found on May 29, was built in the upright fork formed by the two main boughs of a tree. It was fully exposed to view and was practically suspended between the two branches.

162. Phasianus torquatus (Gm.).
Styan, Ibis, 1891, p. 499.

The Ring-necked Pheasant is still abundant in some favoured localities near Chinkiang, but the native pot-hunters and the peasants have almost extirpated it in the near neighbourhood of the city by shooting it during close time and taking the eggs. Pheasants found above Chinkiang at a place called Icheng, on the north bank of the river, nearly always have the white ring perfect, the rump and upper tail-coverts clear greyish green, and the tail very long and narrowly barred. Those shot about Chinkiang and below nearly always have the white ring incomplete and the tail generally coarsely barred. One example shot near Chinkiang has a buff-coloured ground to the scapulars.

On July 30 I found a deserted nest on some marshy ground in the plain. It was a pad of rushes placed on the soil in a sedge-field. A tuft of grass was bent over so as to conceal it and form a shelter. Part of the shell of one egg, which had probably been eaten by rats, lay a few feet from the nest, inside of which were two fresh eggs, one of which had marks of the robbers' teeth in the shape of small punctures. Both these eggs are very small (1·55 × 1·27″ and 1·49 × 1·28″); their colour is pale olive-buff.

Another nest was shown to me on June 26, on the loëss hills. It was merely a hollow in a strip of long grass adjoining a tennis-court in the Recreation Ground. The herbage growing around had been drawn over and locked together, so as to form a dome or roof over the eggs, which were seven in number and quite fresh. As the nest was known to a lot of native boys, and there was no chance of its being left undisturbed, I took the eggs. Three are pale buff and four pale olive-buff, all of a pointed-ovate shape. They average 1·78 × 1·28″: the largest is 1·80 × 1·30″ and the smallest 1·75 × 1·27″. There are evidently two broods in a season about Chinkiang.

163. Coturnix communis Bonn.
Styan, Ibis, 1891, p. 500.

164. Coturnix japonica Cassin.
La Touche & Rickett, Ibis, 1905, p. 59.

Both the common and the Japanese form of the Quail are abundant about Chinkiang in autumn and winter, and probably a few individuals remain to breed *.

165. Turnix blanfordi Blyth.
Styan, Ibis, 1891, p. 500.

This species summers at Chinkiang and is very abundant in the early autumn. A female shot on May 19 had finished laying eggs, so that the first broods are probably hatched early in June. Two females shot on August 16 and September 7 each contained a large soft ovum, measuring in one case about 0·60″ and in the other about 0·40″ in diameter.

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* Partridges of any kind are unknown at Chinkiang.

One year a woodcutter brought to me on June 13 a number of eggs, of which four are undoubtedly those of this bird and bear a close resemblance to some of the eggs of Turnicidæ figured in the 'Catalogue of Eggs in the British Museum,' vol. i. pl. viii. These four specimens are of a broad pyriform-ovate or peg-top shape. The ground-colour is greyish white and they are very thickly speckled with reddish brown and purple of various shades over paler purple underlying spots. In three the deeper purple spots are large, scanty, and very dark, in one of them forming an irregular ring round the large end, and in the two others scattered all over the shell. They measure 1·01 × 0·86″ (two eggs), 1·05 × 0·86″, and 1·06 × 0·86″. The texture is very smooth and glossy. So far as I can remember, the finder told me that he had found them on the ground. Two other eggs, both very stale, brought to me on July 11, and declared to be Quail's eggs, are very similar to the former, but perhaps still more finely speckled; they measure 1·03 × 0·84″ and 1·03 × 0·86″.

166. Rallus indicus Blyth.

Styan, Ibis, 1891, p. 500.

The Indian Water-Rail is probably a resident. I have two specimens, both males, shot on December 21 and January 31, and have seen a third, shot on December 7.

167. Hypotænidia striata (L.).

Rallus jouyi Stejneger; Styan, Ibis, 1891, p. 500.

One specimen from Chinkiang was seen by Styan. I have not met with this Rail there. Two or three examples have been shot at Foochow, one of which is in my collection. It seems an uncommon bird in Eastern China.

168. Porzana paykulli (Ljungh).

Porzana mandarina Swinhoe, Ann. & Mag. Nat. Hist. 1870, v. p. 173.

Rallina mandarina Sw.; Styan, Ibis, 1894, p. 335.

Limnobænus paykulli Sharpe, Cat. B. xxiii. p. 149.

A fine male example of this Rail was shot by the collectors on May 21, and a young female was brought to me alive on September 21. I kept the latter for ten days in a cage darkened on three sides. It soon ate chopped raw meat freely, but as it did not become tame and I feared that it would escape, I chloroformed it and preserved the skin.

The soft parts, &c., of these birds were:—

♂. May 21, 1902.—Iris light vermilion. Rim of eyelid orange-vermilion. Bill greenish plumbeous, shot or washed with blue and greenish blue, greenish along culmen. Legs light orange-vermilion. Claws horn-coloured. Bill 1 in.; wing 5·05 in.; tail 2·50 in.; tarsus 1·70 in.: total length 10·60 in.

♀. September 21, 1903.—Iris light greenish hazel. Bill greenish grey, upper mandible and point of the lower horn-coloured. Legs dull greenish, with a tinge of pink. Bill 0·80 in.; wing 4·85 in.; tail 2·20 in.; tarsus 1·60 in.: total length 9·90 in.

169. Porzana fusca (L.).

Porzana erythrothorax T. & S.; Styan, Ibis, 1891, p. 501.

Amaurornis fuscus (L.); La Touche & Rickett, Ibis, 1905, p. 59.

I shot one specimen of this species by a stream in the hill-country on April 28.

170. Porzana pusilla Pall.

Porzana pygmæa Naum.; Styan, Ibis, 1891, p. 501.

Porzana pusilla Pall.; Styan, Ibis, 1894, p. 336.

Passes in April and May and again in October.

171. Amaurornis phœnicura (Forst.).

Gallinula phœnicura (Penn.); Styan, Ibis, 1891, p. 501.

Amaurornis phœnicurus (Forst.); La Touche & Rickett, Ibis, 1905, p. 59.

Extremely common during summer. I took on June 21, 1903, six hard-sat eggs from a nest of dry flags placed on the top of a pollard willow growing in water by the bank of an island in a large pond. On May 29 of the following year I took six slightly incubated eggs from a nest placed in a hedge, in the middle of a hibiscus and honeysuckle bush. Besides these I have a clutch of six slightly incubated eggs, brought to me by a native on June 23, and said to have been taken from a nest placed among reeds. I also obtained four fresh eggs on June 2, and two, equally fresh, on July 10.

172. Gallinula chloropus (L.).

Styan, Ibis, 1891, p. 501.

The Common Water-hen breeds in numbers in the flooded fields and reed-beds on both sides of the river. A few individuals probably pass the winter here, as I have a young bird shot on December 21.

173. Gallicrex cinerea (Gm.).

Styan, Ibis, 1891, p. 501; La Touche & Rickett, Ibis, 1905, p. 60.

The Water-Cock is extremely abundant during summer. It breeds among the reeds. I was unable to take any nests myself, but obtained three clutches of four, six, and five eggs on July 11 and 18. Two of the eggs of the first clutch were stale, the others fairly fresh; these are of the glossy variety with red and pale purple spots. The other two clutches were respectively slightly incubated and nearly fresh; they belong to the less glossy reddish variety and are covered with numerous large splashes of yellowish red, with very few purple underlying spots. These fifteen eggs average 1·68 × 1·23″; the largest is 1·76 × 1·29″ and the smallest 1·62 × 1·26″; the narrowest diameter is 1·16″.

174. Fulica atra L.

Styan, Ibis, 1891, p. 501.

This Coot is common in winter and sometimes remains to breed. On June 19 nine eggs were given to me, and I obtained another on July 13. All of them were quite fresh. They range in size from 2·17 × 1·54″ to 1·93 × 1·40″.

175. Hydrophasis chirurgus (Scop.).

Styan, Ibis, 1891, p. 502.

The Water-Pheasant appears about the end of May and is very abundant during summer on the south bank of the river about flooded fields and reed-beds. I do not remember having seen it on the north bank of the river. The end of June and July seem to be at Chinkiang the time during which the eggs are laid. The birds appear to leave very early, and when going over their breeding-grounds in September I did not see a single individual.

I did not take any eggs myself during my two nesting-seasons at Chinkiang, but procured some through my collectors. On the 5th of July I bought a clutch of three, a little incubated, on the 8th a clutch of four, on the 10th two a little incubated, on the 20th four also incubated, and on the 26th one nearly fresh.

All these are of the usual flat-ended peg-top shape, and range in colour from yellowish olive to deep bronze. Fresh or nearly fresh eggs are intensely smooth and glossy, but the gloss seems to wear off as incubation proceeds. Thirteen eggs average 1·38 × 1·05″, and range in length from 1·30 to 1·47″, in breadth from 1·03 to 1·09″.

176. VANELLUS CRISTATUS Wolf & Meyer.

Styan, Ibis, 1891, p. 504.

Common enough during winter.

177. CHETTUSIA CINEREA (Blyth).

Lobivanellus cinereus Blyth; Styan, Ibis, 1891, p. 503.

Chettusia cinerea (Blyth); La Touche & Rickett, Ibis, 1905, p. 61.

Appears in February. A fair number breed in the country round about Chinkiang. A pair seen on May 19 flying about a wheat-field had eggs or young, probably the latter. The birds flew over the field, coming at times quite close to me and screaming harshly all the time. A clutch of three eggs given to me on May 6, and another, also of three eggs, bought from a native on May 19, resemble the figure of the egg of this species in the 'Catalogue of Eggs in the British Museum.' They are olive-buff, more or less heavily spotted and blotched, chiefly at the larger end, with blackish brown over dull purplish-grey underlying spots and blotches. The shape is somewhat pyriform-ovate with pointed or else slightly rounded apex. The eggs of the first clutch measure 1·80 × 1·35″, 1·87 × 1·38″, and 1·90 × 1·37″; those of the second 1·80 × 1·33″, 1·82 × 1·32″, and 1·83 × 1·35″.

178. Squatarola helvetica (L.).
Styan, Ibis, 1891, p. 503.

I have occasionally seen bunches of this Plover being hawked about the streets in winter.

179. Ægialitis placidus (Gray).
Styan, Ibis, 1891, p. 503.

Not uncommon during winter. Small parties are to be seen in early spring.

180. Ægialitis minor Wolf & Meyer.
Styan, Ibis, 1891, p. 503.

Common in spring.

181. Recurvirostra avocetta L.
Styan, Ibis, 1891, p. 504.

A few winter in the district.

182. Numenius lineatus Cuv.
Styan, Ibis, 1891, p. 508.

A solitary Curlew seen on the river-banks on February 15 was probably of this species.

183. Totanus glottis L.
Styan, Ibis, 1891, p. 507.

Fairly common in winter.

184. Totanus calidris (L.).
Styan, Ibis, 1891, p. 507.

185. Totanus fuscus (L.).
Styan, Ibis, 1891, p. 507.

I once met a man hawking bunches of these two species of Sandpipers.

186. Totanus ochropus (L.).
Styan, Ibis, 1891, p. 506.

Very common during winter on banks of creeks and ponds. I have, on one or two occasions, seen it at the end of July, and suspect that a few individuals may breed in the district*.

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* During the five years that I spent at Chinkiang I never saw a single example of the Common Sandpiper (*Tringoides hypoleucus*).

187. Totanus glareola (L.).
Styan, Ibis, 1891, p. 507.

Common in March in wet fields.

188. Scolopax rusticula L.
Styan, Ibis, 1891, p. 504.

Woodcocks are common during the winter in suitable localities both on the hills and on the plain. As remarked by Styan, they are seen very late in the spring and it may be that some remain to breed: I saw one on the hills on April 26, and the collectors put up three in the same range on May 15 and 16.

189. Gallinago solitaria (Hodgs.).
Styan, Ibis, 1891, p. 504.

I procured three examples at Chinkiang. One, which had been shot somewhere up the Grand Canal, was sent to me in December, 1900, by Mr. E. Starkey, of Chinkiang; on January 9, 1901, I found a second specimen among a heap of wild Doves in a shop on the Concession; the third was shot by Mr. L. Rocher, then Commissioner of Customs at Chinkiang, on November 9, 1904, on the hills near Icheng.

This species is probably less rare than is usually thought, and is often taken for a "young Woodcock."

190. Gallinago megala Swinhoe.
Styan, Ibis, 1891, p. 505.

191. Gallinago stenura (Bp.).
Styan, Ibis, 1891, p. 504.

Chinkiang is not a good locality, as a rule, for Swinhoe's or the Pin-tailed Snipe, as the ground is generally either too dry or too wet. The Pintail Snipe seems to be more abundant than *G. megala* and appears earlier on the autumn migration, which begins about the first days of August, while I have shot *G. megala* as late as October 8. In spring both species are most abundant in May.

192. Gallinago cœlestis Frenzel.
Styan, Ibis, 1891, p. 505.

Abundant on suitable ground from the end of September to May.

193. Rhynchæa capensis L.
Styan, Ibis, 1891, p. 505.

I have seen specimens shot in August and September.

194. Larus canus L.
Styan, Ibis, 1891, p. 508.

195. Larus melanurus T. & S.
Styan, Ibis, 1891, p. 508.

196. Larus cachinnans Pall.
Styan, Ibis, 1891, p. 508.

197. Larus ridibundus L.
Styan, Ibis, 1891, p. 508.

The Common and the Black-tailed Gull are to be seen every winter on the river among the shipping. I have also seen large Gulls which were either *L. cachinnans* or *L. vegæ*. Perhaps both these species occur, *L. vegæ* being a very common Gull on the coast. The Laughing-Gull seems very rare at Chinkiang. I have never noticed it in the harbour. Two or three small Gulls noticed in spring by a lagoon were probably of this species.

198. Sylochelidon caspia (Pall.).
Styan, Ibis, 1891, p. 509.

I have once or twice seen a large Tern on the river which appeared to be of this species.

199. Hydrochelidon hybrida (Pall.).
Styan, Ibis, 1891, p. 509.

I saw on July 10, 1903, a pair of these Terns flying over a flooded field.

200. Phalacrocorax carbo L.
Styan, Ibis, 1891, p. 491.

Abundant in winter. The birds roost on a steep rock by Silver Island, and during the day are found on the ponds in the plain. I do not know where they breed.

The natives here, as elsewhere in China, use Cormorants for fishing-purposes on the ponds and creeks. A small boat, not a raft as in the south, is used. The birds are carried on square perches resembling falconer's cadges. The fisherman suspends two of these cadges from the ends of a carrying-pole and slings them on his shoulder. Another man follows, carrying the boat on his head.

201. ARDEA CINEREA L.

Styan, Ibis, 1891, p. 491; La Touche & Rickett, Ibis, 1905, p. 64.

Very common in winter. Some breed in the district, as I have seen the birds in July, and once a nest was pointed out to me as being that of this Heron.

202. ARDEA PURPUREA L.

Ardea purpurea L.; Styan, Ibis, 1891, p. 491.

Seen by the collectors on April 24.

203. HERODIAS GARZETTA (L.).

Styan, Ibis, 1891, p. 492.

I did not see a single Lesser Egret or, in fact, White Herons of any kind at Chinkiang, but I have two eggs of *H. garzetta* brought to me on June 28 which, I was told, had been taken from a heronry situated somewhere on the north bank of the river.

204. ARDEOLA BACCHUS Bp.

Ardeola prasinosceles Swinhoe; Styan, Ibis, 1891, p. 492.

This Heron is common in summer, breeding in June and July. I have a number of eggs, taken chiefly, I believe, from a heronry on the north bank of the river which I visited one year on June 16. This heronry was in a thick belt of low bamboos in a private compound of considerable extent enclosed by a moat. I saw numerous nests placed on the bamboos about ten feet from the ground; they were made of twigs and were small and flat. We took one clutch of four eggs, all the other nests which we saw being empty. The owner of the house had taken the eggs for food.

205. DUPETOR FLAVICOLLIS Lath.

Styan, Ibis, 1891, p. 492; La Touche & Rickett, Ibis, 1905, p. 66.

The Yellow-necked Heron is abundant during summer, and breeds in the reed-beds and in patches of bulrushes in the ponds. I procured eggs in June and July, most of which were brought to me by natives. On June 18 I found a nest placed on a pollard willow growing on the bank of a creek in the midst of a reed-bed. It was flat and composed of sticks, with a depression about an inch in depth. There were five eggs, much incubated, which I did not take.

206. Ardetta sinensis (Gm.).

Styan, Ibis, 1891, p. 492; La Touche & Rickett, Ibis, 1905, p. 66.

The Chinese Little Bittern is extremely plentiful during summer. It nests chiefly in the reed-beds and in patches of bulrushes growing in the ponds. The nest, made of dry reed-leaves and dry bulrushes, is attached to the vegetation by bits of the material composing it, these being strongly twisted and worked round the supporting reeds or flags. The measurements of a nest taken on June 8 were: outer height about 5 in., outer diameter about 7 in., depth of egg-cavity 1–1½ in. There was an attempt at a lining, made of a few broken strips of reed-leaves. I obtained eggs throughout June and nearly to the end of July. The usual number in a clutch is four. The colour is greenish white, and the most usual shape oval. Thirty-six eggs average 1·25 × 0·96″. An exceptionally large specimen measures 1·36 × 1·00″, the next largest being 1·33 × 1″, and the smallest 1·1 × 80·90″. I heard during summer, in a marshy field more or less covered with reeds and sedges, a strange moaning sound which I believe to have been the call of this bird.

207. Ardetta cinnamomea (Gm.).

Styan, Ibis, 1891, p. 493.

I did not secure a specimen of the Cinnamon Heron at Chinkiang, but I once saw a small Heron which appeared to belong to this species. It would seem, however, to breed commonly on the north bank of the river, as on July 11 and 13 a number of eggs, which were apparently those of this bird, were brought to me. I was told that they had been found among reeds or rushes in nests lying on or near narrow paths in flooded rice-fields. I visited the place five days afterwards, but saw neither Herons nor nests. The eggs, which are pure white without a tinge of green, are mostly oval, and range in size from 1·29 × 0·98″ to 1·40 × 1·03″.

208. ARDETTA EURYTHMA Swinhoe.
Styan, Ibis, 1891, p. 493.

Passes in April and May.

209. NYCTICORAX GRISEUS (L.).
Styan, Ibis, 1891, p. 493.

Common in summer.

210. BOTAURUS STELLARIS (L.).
Styan, Ibis, 1891, p. 493.

Found in reed-beds in winter.

211. CYGNUS BEWICKI Yarr.
Cygnus minor Pall.; Styan, Ibis, 1891, p. 494.

The skin of an immature bird was sold to me by a native, who said that he had shot the bird somewhere up the canal.

212. ANSER RUBRIROSTRIS Hodgs.
Anser cinereus Meyer & Wolf; Styan, Ibis, 1891, p. 495.

213. ANSER SERRIROSTRIS Swinhoe.
Anser segetum (Gm.); Styan, Ibis, 1891, p. 495.

214. ANSER ALBIFRONS (Gm.).
Styan, Ibis, 1891, p. 494.

These three kinds of Geese are found in winter near Chinkiang. I have shot one of each of the two latter species.

215. NETTAPUS COROMANDELIANUS (Gm.).
Styan, Ibis, 1891, p. 495.

Very common in summer from the end of May. I was unable to procure eggs, nor could I find a single nest.

216. ANAS BOSCAS L.
Styan, Ibis, 1891, p. 496.

Abundant in winter. In 1902 I saw it in the flooded fields as late as April 24. The winter of 1901–1902 was a very good season at Chinkiang for wild-fowl. Much water remained in the fields from the previous summer's floods, the cold was severe, and quantities of Ducks and Teal frequented the wet fields and inland ponds.

217. ANAS ZONORHYNCHA Swinhoe.
Styan, Ibis, 1891, p. 496; La Touche & Rickett, Ibis, 1905, p. 67.
Resident. Abundant in winter.

218. DAFILA ACUTA (L.).
Styan, Ibis, 1891, p. 496.
Abundant in winter.

219. ÆX GALERICULATA (L.).
Styan, Ibis, 1891, p. 496.
Several examples were shot or netted during the winter of 1901–1902. The collectors saw three on April 22, and a small party of Ducks seen by me on April 19 were, I believe, of this species.

220. NETTIUM FORMOSUM (Georgi).
Styan, Ibis, 1891, p. 497.
This Teal was very common during the season of 1901–1902 on the flooded fields. I shot one as late as March 23.

221. NETTIUM CRECCA (L.).
Styan, Ibis, 1891, p. 496.
Very abundant in winter, arriving early and remaining until late in spring.

222. QUERQUEDULA CIRCIA (L.).
Styan, Ibis, 1891, p. 496.
The only individual of this species which I have seen at Chinkiang was a male resembling the semi-albino procured by me at Foochow (see 'Ibis,' 1892, p. 492). It was shot by the collectors on April 24.

223. SPATULA CLYPEATA (L.).
Styan, Ibis, 1891, p. 497.

I shot one female on March 9.

224. CLANGULA GLAUCION (L.).
Styan, Ibis, 1891, p. 497.

I saw a small party of these Ducks on a pond on December 29, 1901, and shot a fine male in full plumage.

225. MERGUS ALBELLUS (L.).
Styan, Ibis, 1891, p. 498.

Common in winter.

226. MERGUS MERGANSER L.
Styan, Ibis, 1891, p. 498.

Very common in winter.

227. PODICIPES PHILIPPENSIS Bonn.
Podicipes minor (Briss.); Styan, Ibis, 1891, p. 510.

A very common resident species. Numbers breed in the ponds in the country from the end of May until far into July, and I obtained eggs from May 29 to July 13. The nests which I found were floating truncated pyramids of weeds. The full clutch consists of six or seven eggs. When quite fresh they are greenish white, but become creamy white after a short time, the colour deepening until at the moment of hatching it is of a dull brown. The general shape of the eggs is biconical, one end being more pointed than the other; a few are oval with both ends more or less pointed. Thirty-three eggs average 1·45 × 1·02″. They range in size from 1·39 × 1″ to 1·54 × 1·03″. The diameter in some is only 0·98″, but in one case it is as much as 1·06″.

One of four brown eggs, taken on June 23, hatched in my room the following night, and the next day I found the young bird crawling about the floor. When put into a basin of water it swam rapidly like a frog, but with the head and bill pointing downwards (probably through having sustained some injury), and when deposited on a table it crawled rapidly on all fours in the same way. The bill of this bird was pink, the iris was light chestnut, and the legs were plumbeous grey.

I opened two of the remaining eggs and took out the young, which were alive. They were much less advanced than the hatched bird. The most forward would probably have been hatched next day, but the other had no scales on its legs, and would probably not have come out for four days *.

II.—*On the Birds of Gazaland, Southern Rhodesia.*
By C. F. M. Swynnerton.

(Plate I.)

Although the greater portion of the high veld of Gazaland is now included politically in Mashonaland, under the name of the "Melsetter District," from a scientific point of view, and from the view of the natives, Gazaland (the country conquered at the commencement of the last century by Mauikusa and his Zulus—the "Aba-Gaza") constitutes a very distinct district, characterized by the irruption of many trans-Zambezian forms and in parts by its richer and more varied vegetation. The highlands under the rule of the Chartered Company are separated from Mashonaland proper by the Umvumvumvu River on the north and by the Sabi (here a wide sand-river, flowing at the bottom of a hot dry valley at an elevation of about 1000 feet) on the west. They consist of grassy mountains, varying from 3000 feet in parts of Southern Melsetter to the 8000 feet or more of the rugged Chimanimani range, the whole being well watered by numerous permanent streams and so varied in character as to afford an unusually interesting field for the naturalist, whatever his special hobby may be. Much of the country, especially at the higher elevations, is open and covered with short turf, but woods of *Brachystegia* and other trees of similar habit, with a bird-life much resembling that of Salisbury, are not infrequent. These woods attain their greatest development, so far at least as the high veld is concerned, on the hills of Chikore, which separate Chirinda from the Sabi valley, and in portions of the Jihu and the Busi-Umshanetzi country. Patches of splendid virgin-forest (text-fig. 1), consisting of trees, mostly evergreen, of great height and girth, which shade a dense undergrowth of shrubs and saplings, are scattered throughout the district, the most notable forest being that of Chirinda. These areas, in common with the wooded kloofs, supply a limited, but unusually interesting, list of birds peculiar to themselves, including, amongst others, *Criniger milanjensis* and *Buceros cristatus*, both common species. Last, but, to the ornithologist, by no means least

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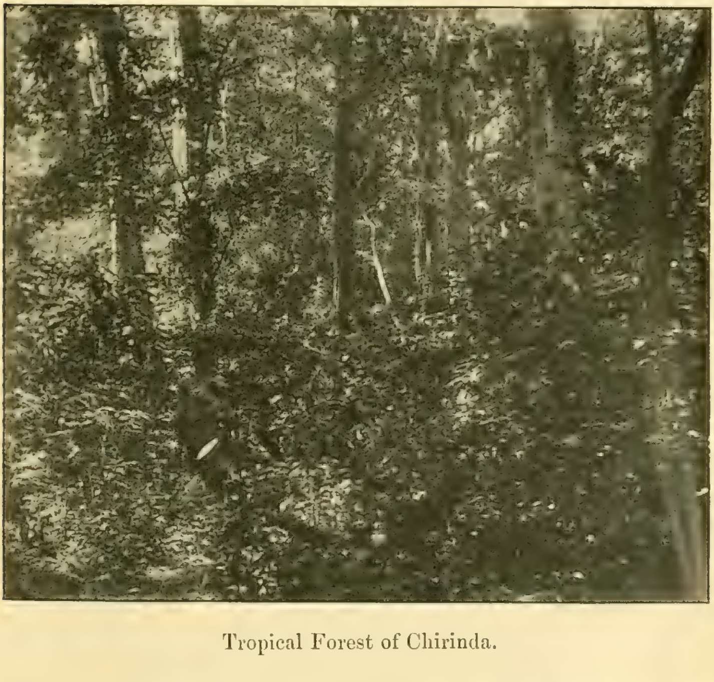
* A single egg which I found on July 5, and thought at first was the egg of this Grebe, is so much larger than any of the eggs described above that I do not think it can be an egg of the Dabchick. It might belong to *P. nigricollis*, although I have never seen that species at Chinkiang. It measures 1·61 × 1·04″. It is greenish white, and its shape is narrowly oval, with one end much pointed.

Text-fig. 1.



Tropical Forest of Chirinda.

productive, comes the "Jihu"—a term applied both to a grass and to the rich red soil on which it commonly grows, but more especially to the whole district lying to the south of Chirinda, which belongs entirely to this type of country. It is covered with dense grass-jungle, rising to ten feet or more in height, bound together in an impenetrable mass by a thorny *Smilax*, the stinging Velvet-Bean (*Mucuna*), yams of more than one species, and other kinds of rank growth, interspersed with thorn-trees, or, in parts, with "Tshianga," "Mubhungu," and other comparatively large trees of the *Brachystegia* type of growth, which form fine open woods and are swarming with birds. Mount Shinguné bounds the Jihu on the south, falling abruptly 1000 or 1500 feet to the Umswirezi, which here winds sluggishly through the centre of a broad flat valley, exceedingly fertile in a good rainy season, but liable to drought. In consequence of this and of the great power of the sun, it is comparatively bare, the grass, though long, not attaining the rank growth of the "Jihu," and the bush where it occurs being of a rather stunted character. The Umswirezi itself, however, and the permanent streams entering it from the hills are marked by lines of magnificent Adinas, Khayas, and other fine trees, which, at the time of my visit, in the commencement of November, were full of birds.

It was in these flats, at the foot of Shingune, that Gungunyana, grandson of Mauikusa and the last of the Gaza kings, held his court in traditional Zulu style for many years previous to his capture in 1896 by the Portuguese.

Many of the more striking birds were in these by-gone days reserved exclusively for the use of the chief and his wives, and death was the penalty for any infringement of this rule.

The fact that the Aba-gaza, or Manguni, as they are here more commonly entitled, settled in this part of the country, and recognised the native chiefs, instead of using it as a mere raiding ground, has resulted in the adoption, south of the Lusitu River, of their language, Singuni or Zulu, and of many of their customs and traditions by the Aba-ndawe. Thus most of the men (since they had to appear at court), and the women to a less extent, now speak two languages, with the result that every bird—at least those which they trouble to differentiate at all—has two names, both usually onomatopœtic, and sometimes two sets of traditions and two or more renderings of the call-notes. It thus, too, comes about that some species are now best, if not exclusively, known by their Singuni, others still by their Tshindawe name.

"Mafusi," a locality which I shall have occasion to mention again, lies between the heights of Chirinda, Mounts Maruma and Mpengo, with their continuation north-east to the Lusitu to the east, and the rocky Sitatonga range, a good day's walk further *east*, and is bounded on the north and south by the Lusitu and Buzi respectively. It is ruled by Mafusi, Makwiana, and other chiefs, and consists for the most part of a network of low, "Jihu"-covered hills, drained by the Tchikamboge, Umshanetzi, Musesi, and other streams. Practically it is a north-eastern extension of the Jihu, and varies from 2000 to 3000 feet in elevation, though a certain amount of high veld with an altitude of 4000 feet is included in it. It contains small patches of true forest and is particularly rich in bird-life. I made a small collection there in 1899. The greater part of Mafusi, as well as of the Jihu and the valley of the Lower Umswirezi, lies on the Portuguese side of the border.

I have not had time to take up the study of nidification properly, but the majority of the few species of which I have observed the nesting-habits belong to our most interesting group, that of the "birds of the forest." Housekeeping must be somewhat up-hill work for them in Chirinda. Time after time nests which I have been watching have been destroyed, the spoor of the baboon below revealing the identity of the culprit, and it is really wonderful that the smaller forest-birds keep up their numbers in the face of this systematic destruction. Squirrels too, which are abundant in Chirinda, are doubtless responsible for a good deal of damage, and I have occasionally found the contents of a nest broken by the fall of a branch. Kafirs will frequently spare a nest with eggs, but only with the idea of robbing it later, when the nestlings, which they invariably eat, are hatched. I have, however, frequently noted the disappearance of eggs under circumstances which, quite apart from the total absence of tracks, precluded the possibility of native agency, and I have very little doubt that in many of these cases they have been removed by the bird itself to a place of greater safety as a result of their having been handled. The Kafirs themselves invariably account for the fact in this way, and are in the habit, when removing part of a clutch or leaving eggs to hatch which they have touched (a thing they usually avoid), of plucking out an eyelash and placing it in the nest, believing that this has the effect of preventing the birds from removing the eggs.

Evidently, should my explanation be correct, the birds of this country have such a habit developed to a far greater degree than those of Europe, doubtless as the result of the constant interference with their operations which I have observed to take place. Again, the small number of eggs—from two to three—laid by the vast majority of our local species must strike anyone who has birds'-nested at all extensively in England, where clutches of five are the rule, and in many cases larger numbers are no exception.

With regard to the fact of small birds of various species herding together under the leadership of the Drongos, mentioned by Mr. G. A. K. Marshall in 'The Ibis' for 1900 (p. 222), I may state that I have observed the same phenomenon here, particularly in the areas of open bush; but, though the habit is undoubtedly a great protection to the weaker species, and has evidently reached its present high development as a result of this, yet the fact that the small birds peculiar to the forest—the canopy and dense undergrowth of which ought to afford ample protection from the Hawks (and Hawks are in fact scarce in this district as compared with the neighbourhood of Salisbury)—also possess this habit, though perhaps in a somewhat less marked degree, appears to me to indicate that it is due in part to mere social instinct.

I may frequently, in the following notes, have occasion to mention the "Gumiti-berry," a small bright yellow fruit with yellowish milky juice and a hard black pyramidal seed, the product of a large Urticaceous forest-tree, not yet identified. It appears to be greatly relished by the forest-birds, even those that are most insectivorous, and supplies them with food for several months in the year.

I take this opportunity of heartily thanking Capt. G. E. Shelley for his kindness in determining a number of specimens sent to him and in revising the present notes. I wish also to thank my old friend, Mr. Guy F. Marshall, for his never-failing help and encouragement.

The following list is obviously anything but complete. I was able to devote very little time to the subject until a year ago, and in particular have had no opportunity of examining any of the larger rivers, all of which are said to be extremely rich in water-birds. Moreover this district is anything but deficient in Weavers, Warblers, and many other families which are but poorly represented in my list.

[Along with the present paper Mr. Swynnerton forwarded to England a collection of skins, which Capt. Shelley carefully examined during his study of the MS. He described two new species from it at the meeting of the B. O. C. in June 1906 (*Erithacus swynnertoni* and *Apalis chirindensis*), but (owing to ill-health, I regret to say) has not been able to complete his revision. Besides these novelties it appears that the following twelve species from Mr. Swynnerton's collection are new to the Fauna of South Africa south of the Zambesi, not being included in Mr. W. L. Sclater's work on that subject:—

Estrilda clarkii (p. 39).
Nectarinia arturi (p. 42).
Cinnyris niassæ (p. 43).
Telephonus anchietæ (p. 47).
Laniarius bertrandi (p. 48).
Phyllostrophus milanjensis (p. 54).
Sylviella whytii (p. 56).
Monticola sp. inc. (p. 60).
Erithacus swynnertoni (p. 61).
Pachyprora dimorpha (p. 69).
Trochocercus albo-notatus (p. 70).
Terpsiphone plumbeiceps (p. 71).

It is therefore evident that Mr. Swynnerton has made no slight addition to the Avifauna of South Africa, besides providing us with excellent field-notes on many little-known species.

The nomenclature and arrangement of Mr. W. L. Sclater's 'Fauna of South Africa' are followed throughout this paper.—P. L. S.]

1. CORVULTUR ALBICOLLIS. White-necked Raven.

Extremely plentiful throughout the district in pairs or in flocks. Sometimes before a storm they will rise above the forest of Chirinda in large numbers—a hundred or more—and wheel and caw in the air after the manner of English Rooks under similar circumstances. They are essentially carnivorous, taking the place of the Vultures on the highlands, while their fondness for grubs and grasshoppers renders them occasionally of service to the tobacco-planter; but they do considerable damage to the mealie-crop, both when first sown and when ripening. It is said that Gungunyana regarded the Ravens as his especial pets, and would even order an execution—usually of a man of whose increasing wealth he was jealous—expressly "to feed the Ravens," should the flocks, which always frequented the gate outside which the dead bodies of his victims were exposed, have been without human food for some length of time. These birds breed in the rocky "kraantzes" to be found here and there throughout the district.

2. CORVUS SCAPULATUS. Pied Crow.

This Crow is comparatively rare on the Gazaland highlands, and the exceptional individuals which may be seen are usually, I believe, on their way from the lowlands to the more western or northern districts of Mashonaland, or *vice versâ*. A pair, however, recently built in a large mahogany-tree (*Khaya senegalensis*) close to the homestead of my neighbour, Mr. Odendaal, and brought off their young, two in number: the four birds may now (end of February) be seen daily in his mealie-field. This species appears to be more plentiful in the lowlands.

3. CORVUS CAPENSIS. Black Crow.

This is even rarer than the preceding bird. I saw a pair in the neighbourhood of the Nyahodi River, in Northern Melsetter, in February, 1900.

4. BUPHAGA AFRICANA. Yellow-billed Oxpecker.

Fairly plentiful in Mafusi and in other parts of the district, and particularly so, the natives say, in the Jihu, where buffaloes abound. Its harsh cry frequently betrays the presence of big game to the hunter. The flesh of this bird is never eaten by the natives, as is also the case with the Raven.

5. HYPHANTORNIS NIGRICEPS. Black-headed Weaver-bird.

Common in some parts of the district, notably the Tchikamboge Valley, Mafusi, where the nests are plentiful, hanging in colonies from the twigs of the thorn-trees. They are not unlike those of *H. velatus*, with the hole below and no tunnel, but more untidy. The crops of those procured contained seeds only.

6. SITAGRA OCULARIA. Smith's Weaver-bird.

I have shot or seen this Weaver-bird on a few occasions in different parts of the district, including the Jihu, and have little doubt that it will prove to be fairly common. Two specimens have been examined, the crops of which contained "lady-birds" and other beetles—no seeds. The nest is entered by a tunnel which projects horizontally from one side.

7. SITAGRA CAPENSIS. Cape Weaver-bird.

This handsome Weaver-bird is plentiful both in grass-jungle and along the banks of streams, where its harsh cry may often be heard. Its nest, suspended at the end of a twig, strongly resembles that of the preceding species. Out of four crops examined, three contained seeds only and the fourth a large bug. Length in the flesh 7·1 inches.

8. SYCOBROTUS STICTIFRONS. Black-backed Weaver-bird.

This is the common and, so far as I know, the only

Weaver-bird of the forest. Its note is a loud "*spink, spink*," and it may occasionally be seen going about in small family-parties amongst the higher branches, or searching the undergrowth, especially leaves which may have dried on a fallen or damaged branch, for the insects which form its chief food; but, on the whole, it is a silent and somewhat solitary bird. I have frequently watched it sitting perfectly still or moving about quietly in the foliage, and on more than one such occasion have shot it in mistake for a Bush-Shrike. A nest common in Chirinda belongs, I have no doubt, to this bird, but I have not yet found one containing eggs. It is always suspended at the end of a long trailing twig or vine, commonly of the thorny acacia, at a considerable distance from the ground, and is seldom accessible; it is composed entirely of roots, vines, and tendrils, usually of a dark colour, loosely woven together, the nest proper measuring from 8 to 10 inches in depth and from 3 to 3·5 in diameter, and the tunnel, which is vertical and entered from below, from 6 to 9 inches in length (from the door of the cup) and about 2·5 in diameter. The contents of the crops examined have been Gumiti-berries, larvæ, beetles, and other small insects. Length in the flesh 6·25 inches.

9. Pytelia nitidula. Hartlaub's Red-faced Weaver-bird.

Seen occasionally in Chirinda and on its outskirts: it is the only Waxbill, so far as I am aware, which habitually enters the forest.

10. Lagonosticta niveo-guttata. Peters's Ruddy Waxbill.

I have frequently met with this pretty Waxbill along the outskirts of Chirinda, and on one occasion I watched a pair picking up seeds in the path, some considerable distance inside the forest-patch of Chipete; but this is, I believe, unusual. The crops examined contained seeds and the *débris* of small insects.

11. Estrilda astrilda. Common Waxbill.

This bird is found in large flocks in the winter, especially about fallow land, living on the seeds of the weeds and grasses. The natives, on catching one, use it as a decoy, and tie it by the leg in the centre of a number of limed twigs; usually with considerable success, for it calls well and soon brings its fellows to the spot.

12. Estrilda clarkii. Sanguineous Waxbill.

Estrelda clarkei Shelley, B. Afr. iv. p. 209.

I obtained a single specimen of this Waxbill on the 10th of August, 1899, in a small swamp in Mafusi's country, at an altitude of 4000 feet. The crop contained small seeds only.

13. Spermestes scutatus. Hooded Weaver-Finch.

In the middle of December I found a nest of this species, cleverly hidden amongst the leaves of a young "Mushagata" tree standing in open grass-veld, about nine feet from the ground. It was a thick-walled and, in comparison with the size of the bird, a bulky structure, composed entirely of grass in flower and seed, which gave it quite a striking appearance: the ends of some of the grasses, studded with seeds, were brought forward over the entrance so as to form a rough porch, rather after the manner of *Coliopasser ardens*; while grasses in flower, and therefore soft, were used almost exclusively for the lining. Diameter of nest, measured externally, from 4 to 4·5 inches; diameter of cup about 3·5. Both birds flew out as I approached, having probably been engaged in putting the finishing touches to the interior, for there were no eggs.

14. Spermestes nigriceps. Rufous-backed Weaver-Finch.

This bird is not uncommon in the rank grass which skirts Chirinda. It is found in pairs or small parties.

15. Pyromelana oryx. Red Bishop-Bird.

Pyromelana oryx sundevalli Shelley, B. Afr. iv. p. 98.

By no means plentiful, but occasionally found in grass-jungle.

16. PYROMELANA CAPENSIS XANTHOMELÆNA. Black-thighed Bishop-Bird.

Much commoner than the preceding species, and plentiful in the long-grass country with open bush.

17. COLIOPASSER ARDENS. Red-collared Widow-Bird.

This is the commonest species of the grass-veld, but the habits of our local form differ greatly from those of the Salisbury bird. Here it does not appear to be particularly partial to water, and the wariness noted by Mr. Marshall is chiefly conspicuous by its absence. I have found several ot its nests containing eggs in February, a fact which implies second broods. They are placed three feet or so from the ground in long grass or weeds, and are built entirely of grass, the finest portions, consisting of the heads stripped of their seeds, forming the interior; the loose ends, being brought forward in a bunch over the top, act as a long fuzzy canopy to ward off the sun and rain. One specimen, which shews signs of inexperience or haste in its construction, practically lacks this canopy, and has a small additional entrance in the side. The eggs are three in number and glossy; they vary from dull bluish white to pale greenish blue, spotted, blotched, and mottled all over with ashy grey and brown of different shades, and much resemble a certain type of egg of the English Tree-Sparrow. This Widow-Bird has here appropriated the name applied in Natal to *Coliopasser progne*, which does not appear to occur in the district. The tail-feathers are much prized by the natives.

18. VIDUA PRINCIPALIS. Pin-tailed Widow-Bird.

This is our commonest Widow-Bird, next to *Coliopasser ardens*, and is very tame, frequently keeping about the vicinity of a homestead or entering a Kafir kraal when the women are grinding, and helping itself to the grain. Its habit of dancing in mid-air, all the time jerking its wings and tail and crying "*swe swe swe*," is distinctly quaint; and on these occasions the children of a kraal will often gather round it and sing in chorus.

I have also seen an apparently pure black Widow-Bird (perhaps *Hypochera funerea*), on a few occasions, going about in flocks in the Jihu country, but have so far failed to secure a specimen.

19. Serinus icterus. Eastern Yellow Seed-eater.

Extremely plentiful, and, like the preceding species, frequently met with in flocks of a dozen or twenty birds during the winter, when it is particularly partial to old, weed-covered, cultivated ground. Some sunflowers standing just outside my house are a great attraction to these Seed-eaters; and during the past winter several were to be seen daily, extracting the seeds from the old heads. The crops contained small seeds only.

20. Emberiza flaviventris. Golden-breasted Bunting.

Commonly met with in the open woods. The crops examined contained seeds only.

21. Fringillaria tahipisi. Rock-Bunting.

In the neighbourhood of Chirinda, at all events, I should say that I have met with this Bunting more frequently than the preceding species. A pair had evidently built in a bank not far from my homestead last December, for whenever I passed the spot one of the birds would cleverly endeavour to entice me away. On the one occasion on which I made a serious attempt to find the nest she finally lost patience, and returning with her mate sat on the bank and abused me heartily.

22. Mirafra fischeri. Fischer's Lark.

Not uncommon, being frequently seen running or standing still in the roads and paths; when disturbed it flies up, circling round and settling down again further up the road. The crops examined contained beetles and seeds.

23. Macronyx croceus. Yellow-throated Long-claw.

Abundant everywhere in the open grass-country. The crops examined contained grasshoppers, large coleopterous larvæ, and beetles, and in one case six large moth-larvæ.

24. Anthus lineiventris. Stripe-bellied Pipit.

I obtained two males of this species in an open wood last

June. The crops examined contained beetles, termites, a large centipede, a beetle-larva, two grasshoppers, and, I think, a butterfly.

25. Anthus trivialis. Tree-Pipit.

The Tree-Pipit is a common grass-veld species, not unfrequently found in cultivated fields. The crops of those examined contained beetles, larvæ, and termites. A short time ago I observed a pair of the birds which had taken up their stand in front of an ant-heap and were busily engaged in devouring the winged termites as they emerged, occasionally making short flights into the air in pursuit of such as were escaping.

26. Anthus rufulus. Lesser Tawny Pipit.

I shot one of these birds last year in May in a cultivated field, where I had previously seen them on several occasions. The crops examined contained beetles and larvæ.

27. Nectarinia famosa. Malachite Sun-bird.

I obtained a single male of this handsome species at Mafusi in 1899. The Chindavo name "Tshinyamtsongono" is applied to all Sun-birds.

28. Nectarinia arturi. Arthur's Sun-bird.

Nectarinia arturi Sclater, Bull. B. O. C. Dec. 19th, 1906.

I shot two of these birds on the Nyahodi River in July 1899, and subsequently secured others at Mafusi, taking them to be *N. bocagii*; but I am now informed that they belong to a new species allied to *Nectarinia kilimensis*—a most interesting discovery, which adds another bird to the South-African ornis. It is comparatively common throughout the district, being found at the blooms of the large orange-flowered *Leonotis mollissima*, so plentiful in river-valleys and in rich soil. The crops examined contained flying ants, small flies, and in one case several large gnats.

29. Cinnyris afer. Greater Double-collared Sun-bird.

I recently secured a male of this species for the first time, on the outskirts of Chirinda.

30. Cinnyris chalybeus. Lesser Double-collared Sun-bird.

Sometimes seen on the *Leonotis*-clumps or hovering about the flowers of Cannas or Grevilleas, but by no means common.

31. Cinnyris niassæ. Nyasan Sun-bird.

Cinnyris venustus niassæ Reichen. Vög. Afr. iii. p. 474.

Extremely plentiful throughout the district, and, like the preceding species, a great frequenter of the *Leonotis*-clumps. Many other flowers, however, both wild and cultivated, are very attractive to it; and the Cannas in my garden are seldom without one or more pairs of this charming little Sun-bird. A thorn-hedge, when available, is a very favourite nesting-place.

32. Cinnyris gutturalis. Scarlet-chested Sun-bird.

This Sun-bird can hardly be said to be common, though occasionally attracted to our gardens or found at some flowering shrub or tree in the veld. It used to be reserved for Gungunyana's wives, who wore the skin of its brilliant scarlet breast as a head-ornament, cutting it so as to include the lower mandible of the bill, which was thrust into the wearer's hair to hold it up.

33. Cinnyris kirki. Kirk's Sun-bird.

An occasional visitor to our flower-gardens, and at times fairly plentiful where sugar-bushes are in flower. The crop of a bird which had been feeding at these flowers contained beetles and ants.

34. Cinnyris olivaceus. Olive-coloured Sun-bird.

This is the common Sun-bird of the forest. It is one of our few birds which have a sustained song, of the true Sun-bird stamp. This song is somewhat monotonous, but pleasant and far stronger than that of any of its congeners which I have yet heard. It is sometimes kept up for two minutes or more without a pause. Both sexes sing; but it is the male, apparently, which gives these long selections, the female merely joining in occasionally for a stave or two, and the rest of the time hopping about somewhat excitedly and crying "*cip! cip! cip!*" (the Zulu *c*; there is no English letter to express the sound). When hunting for food in the undergrowth their mutual call is frequently a harsh little "*hoho-hwey! hoho-hwey!*" At the end of February they may be seen going about in family-parties, and it is then that they are most tuneful; in the winter they become comparatively silent, retaining only the Sun-bird's harsher "*chirrrr,*" in the use of which they are adepts. They breed from October to January, being apparently double-brooded: and the nest, a designedly loose and untidy structure of moss and leaves, is usually slung from the end of a twig from three to six feet above the ground. Seen from a short distance it resembles a loose piece of moss, such as is frequently seen hanging from the branches of trees or shrubs after having fallen from the trunks above. In a typical nest now before me, 9 inches in length exclusive of streamers, the opening is 2·5 inches deep and 1·75 wide, and is situated rather high in the side: externally the material is chiefly moss with a few small twigs and grasses worked in, the cup itself, which has a diameter of 2 inches from front to back, being compact, well strengthened externally with dry leaves bound on with cobwebs, and lined inside with fine stems and the downy pappi of a common rubber-yielding vine. On two or three occasions I have found a few Owl's feathers wrought into the general structure, though never as actual lining. There are usually a few streamers of moss, roots, or other materials hanging from below the opening. The eggs, invariably two in number, are bluish white, marked, chiefly about the larger end and sometimes in the form of a zone, with small spots and streaks of deep sepia and underlying grey; a few of the markings are slightly suffused. I have noted little or no variation from this type. They measure from 17 to 19 mm. in length by 13 in breadth. The behaviour of the sitting birds I have found to vary irrespective of the state of incubation of the eggs, some leaving at the first alarm, while others have allowed me to inspect them at arm's length. They usually return quickly when flushed from the nest. Out of five crops examined, two contained minute flies and other small insects, the others Gumiti-berries only.

35. Anthothreptes collaris. Collared Sun-bird.

Less common than *Cinnyris niassæ*, for which it is liable to be mistaken at a little distance, but not infrequently to be found on the outskirts of Chirinda. It was particularly plentiful there in pairs at the beginning of May last, attracted by the flowers of a large liana; and again towards the close of February a few pairs or family-parties were always to be seen, though no flowers were in bloom. It is the only Sun-bird, with the exception of the preceding species, which I have found inside the forest: I frequently saw it in May at the red flowers of a shrub which in many parts forms the main forest undergrowth—*Macrorungia* sp. inc. The contents of the crops examined were Gumiti-fruit and one or two small insects.

36. Zosterops anderssoni. Andersson's White-eye.

A common species in the kloofs and on the outskirts of the forest, where it may be seen in parties of from five to seven, or sometimes as many as ten individuals, searching the foliage and flowers for insects. It is very tame, and will usually allow a close approach. The crops examined contained minute beetles and flies and one spider.

37. Parus niger. Black Tit.

Not an uncommon bird, both in the open woods and in the kloofs; I have also shot it on the Lower Umswirezi. The crops examined contained spiders and caterpillars (hairy and otherwise), earwigs, and other small insects.

38. Urolestes melanoleucus. Long-tailed Shrike.

This Shrike is of rare occurrence in the high veld proper, but is said to be comparatively common in the Sabi valley and on the Lower Buzi. Its tail-feathers are worn by the Kafirs.

39. Lanius collaris. Fiscal Shrike.

A fairly common species, breeding in the Erythrinas and other trees of the open woods from October to February. It is caught by the natives in traps baited with field-mice.

Its Tshindano name may be translated "impaler of food," in reference to the bird's well-known habits.

40. Lanius collurio. Red-backed Shrike.

This is only a summer-visitor, but is commoner, during its stay, than the preceding species. I have had a number of specimens in immature plumage brought to me of late (February and March) by natives. The crops examined contained beetles, grasshoppers, larvæ (both coleopterous and lepidopterous), a spider, and a small bug; also, in one case, a number of winged termites.

41. Telephonus senegalus. Black-headed Bush-Shrike.

This species is plentiful throughout the district. Its song, being uttered somewhat slowly and distinctly, readily lends itself to words, and the natives have two or three different renderings for it, of which the version "Inkós' indúwe tshwa-ïtá" is perhaps the best. Every year, it is said, in December, Gungunyana would decree the singing of a certain song throughout the land for about six weeks, and at the end of this period indulge in a great slaying; after which the song was not to be sung again till the following year. It appears that after one of these annual massacres the bird's song was interpreted by the youngsters of the royal kraal as "Inkós' indúwe tshwa-itá" ("King, it was you who did it"). This, combined apparently with a fancied resemblance to the tune of the forbidden song, roused the chief's ire, and he ordered that for the future every native finding an "Umquibane" was to slay it. A fairly systematic destruction of the birds "that accused the king" is said to have resulted; but like the blue-buck of Chirinda, also stated to have been destroyed wholesale by Gungunyana, they have since made up for lost time.

The nest, which is usually placed a few feet from the ground in some small tree, is strong, but somewhat slightly built with a shallow cup, that in my collection measuring 1·5 inches in depth and 2·5 by 3·5 in diameter, inside measurement. It is composed externally of dry weed-stems, a small frond of bracken, and, about the upper portion, a liberal allowance of spiders' webs, and is lined with fine roots. The full clutch consists of three eggs, white in ground-colour and irregularly streaked, spotted, and pencilled, chiefly about the larger end and occasionally in the form of a zone, with brown, dark or pale, yellowish or reddish (more usually the latter), and similar but paler underlying markings of grey, usually purplish in tone. In size they vary from 23·5 to 26 mm. in length and from 17·5 to 19 mm. in breadth.

42. Telephonus anchietæ. Anchieta's Bush-Shrike.

Telephonus anchietæ Gad. Cat. B. viii. p. 129.

I shot a single specimen of this bird, a female, on the Lower Zona in November last; it was sitting on the top of a small tree by the water's edge. Length in the flesh 7·19 inches. The crop contained two dragon-flies.

The species is new to the South-African fauna.

43. Dryoscopus cubla. Lesser Puff-back Shrike.

One of our bolder Shrikes, commonly met with in the open woods and, in winter, in small flocks, which occasionally attach themselves for a time to the Drongo regiment, and search for their food both amongst the higher branches and near the ground. The crops examined contained beetles, larvæ, and grasshoppers.

44. Dryoscopus guttatus. Hartlaub's Shrike.

The commonest of our Bush-Shrikes, with the possible exception of *Telephonus senegalus*, frequenting especially grass-jungle country and the denser thickets in the kloofs and on the ant-heaps. I have not seen or heard of it in any of the larger forest-patches, though it occurs in the dense growth which skirts them. The crops examined contained locusts, grasshoppers, and beetles.

45. Laniarius quadricolor. Four-coloured Bush-Shrike.

I have seen only two examples of this handsome Shrike. The first was a female trapped on the nest in December. The nest was a rough structure of small twigs, about two feet from the ground, in the centre of a dense thicket beside a stream, and contained two eggs, evidently the full clutch, as they were hard-set. They were pale blue in ground-colour, spotted and blotched with pale brown and purplish grey, thickly at the larger end, more sparsely elsewhere. In one of them these markings formed a well-defined zone round the thick end. They measured 24 mm. by 16·5. The bird's stomach contained larvæ and a spider. The second specimen, a fine male, I shot on the 23rd of March, on the outskirts of the Chipete forest-patch. Its crop contained two large sphinx-moths and beetles.

46. Laniarius bertrandi. Bertram's Bush-Shrike.

Laniarius bertrandi Shelley, Ibis, 1894, p. 15, pl. ii. fig. 2 (Nyasaland).

I first obtained an example of this species on the outskirts of Chirinda in July last year, but have since found it to be fairly common in the neighbouring forest-patch of Chipete, while in November I shot a male in the large open bush of the Jihu, on the Zona-Kurunadzi water-parting. Its call, which runs up the scale, ending with the repetition of the highest note three or four times, is frequently heard and is very pleasant and flute-like. In December, in Chipete, I shot two grey-cheeked birds, and am uncertain whether to refer them to this species or not: the first was answering, I judged, one of the black-cheeked birds (which I also shot) with the same ascending note, but, as the bush was dense, I may have been mistaken; the call of the second was certainly quite different —a very liquid rapidly-repeated note, not unlike the "*jug-jug-jug*" of a Nightingale, broken by an occasional harsh "*karrr.*"

This species makes an addition to the South-African list.

47. Laniarius sulphureipectus. Orange-breasted Bush-Shrike.

In August 1899 I shot a male of this beautiful species in a wooded kloof in Mafusi's country (alt. 4000 feet), the third which I had seen within a few days. I have since secured a second specimen on the wooded banks of the Lower

Umswirezi (alt. 1000 feet), and again, a few days ago, I saw what I took to be an individual of this species in a small forest-patch close to Chirinda, uttering a musical call resembling the syllables "*pipit-yé! pipit-yé!*"; so that it will probably prove to be not uncommon. It is far more shy and retiring than the following species. The crops examined contained three large caterpillars and the *débris* of small insects

48. Laniarius starki. Southern Grey-headed Bush-Shrike.

Commonly met with in the winter months in the open woods and occasionally on the outskirts of Chirinda, singly or in pairs; it is a comparatively bold species, always keeping to the higher branches, but often difficult to approach. The crop examined contained the remains of a large green flower-beetle.

49. Prionops talacoma. Smith's Helmet-Shrike.

Not uncommon in the open woods, usually forming a member of the Drongo's regiment, though it sometimes dispenses with this protection. A flock of eight or nine individuals frequented a "Manzhanshe"-grove close to my homestead throughout the past winter accompanied only by a pair of *Graucalus pectoralis* and two Hornbills (*Lophoceros melanoleucus*). A stomach examined contained several grasshoppers. The natives regard this species as a bird of omen: should it cross their path, when hunting, from right to left, all is well, and they can proceed with full confidence of success; should it, however, cross from left to right, nothing but the worst of ill-fortune can await him who is so foolhardy as to disregard the warning, and the only sensible course is to go straight home. It is one of the few birds the flesh of which the natives will not eat.

50. Crateropus jardinii. Jardine's Babbler.

Plentiful everywhere, except in the forest and the open short-grass country. A stomach recently examined contained beetles, a beetle-larva, seeds and skins of Cape gooseberries (*Physalis*), and a large hard bean-like seed.

51. Pycnonotus layardi. Black-capped Bulbul.

This is one of the most plentiful birds in the country, and is not uncommon even in Chirinda. It is an inveterate fruit-thief, but it is well to condone some of its misdoings as it also destroys great numbers of insects, and, though it has no sustained song, its notes are cheerful and pleasant. It will frequently build in a bunch of bananas, doubtless with a shrewd eye to the future.

52. Phyllostrophus capensis. Cape Bristle-necked Bulbul.

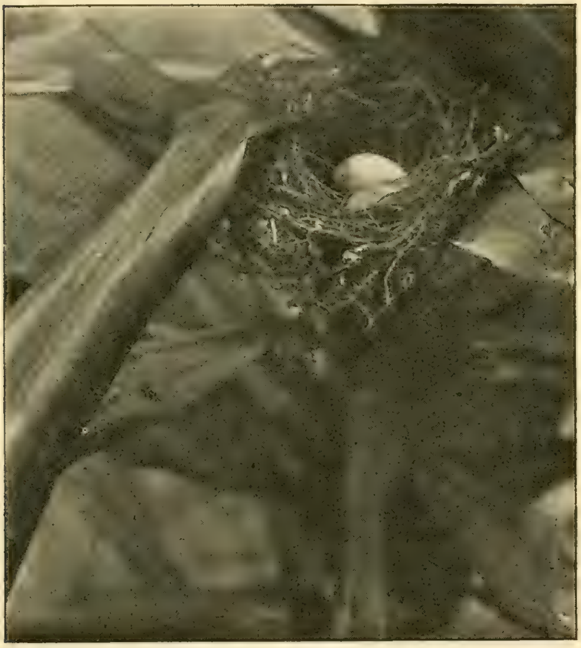
This is one of our characteristic forest-birds, going about in parties in the denser portions of the undergrowth and uttering all the while a harsh croaking note; it is also to be found in forest-patches, kloofs, and dense thickets in the Jihu and elsewhere. It is distinctly shy, never shewing itself if it can avoid doing so, and on the arrival of a party at an open ride in the forest the birds will frequently cross it, only after much chattering and consideration, one by one. A nest which I found in December was placed amongst some low trailing branches about three feet from the ground on the outskirts of the forest. It consisted of a flimsy and untidy cup of small stems, including those of the thorny climbing acacia so common in the forest, and the fine stems of the "false maiden-hair." It was 2 inches in diameter (inside measurement) by 1 inch in depth, and was slightly strengthened by the addition, outside, of a few dry leaves, roots, grass-blades, and a little moss. The eggs, two in number, measured 10 lines by 7·5, and were white in ground-colour, handsomely blotched with grey and olive-brown, the markings being gathered for the most part into a bold zone encircling the larger end of the egg. The bird would leave the nest at the slightest alarm and slip noiselessly away in the undergrowth, but on my finally cutting off her retreat by an approach from within the forest, she shewed considerable boldness, hopping about and croaking at a distance of a few feet. The crops examined contained Gumiti-berries, beetles, a grasshopper, and other insects. The irides of this species vary from light golden brown to burnt-sienna; the legs are pale silvery grey, often with a fleshy tint; the soles usually yellowish.

53. Phyllostrophus flavistriatus. Yellow-streaked Bulbul.

This is the commonest Bulbul of the Chirinda forest, and, as I have shot it also in wooded kloofs and isolated forest-patches, I have little doubt that it will be found throughout the district in such situations. It may be seen during the winter, in fact from the end of February onwards, in parties of six or seven, searching the undergrowth, usually silently, or ascending the trunks of trees and saplings spirally and hunting for insects under the bark. While thus engaged it will repeatedly flap one wing, whether as an aid to balancing itself or in order to frighten out the insects I have been unable to ascertain. Dry leaves, or a broken branch caught up in the trees or undergrowth, are a great attraction, and are always carefully searched for what they may conceal; finally, when not actually engaged in gaining a livelihood, the birds may often be seen playfully chasing one another amongst the higher branches of the trees.

They have several notes, the most frequently heard resembling the syllables "*chip! chap! chop! chip-chap-chop!*" or again, "*chip! chap! chop! chip-chop-chap-charrap!*" which, with slight variations, are repeated several times in succession. Apparently two broods are reared in the season, as I have found nests containing eggs from the commencement of November right on into February. They are attractively-built but somewhat fragile structures (see text-fig. 2, p. 52), slung sometimes from a horizontally-forked twig, but more usually from the broad glossy leaves, at their junction with the stem, of a handsome *Dracæna*, which is common throughout the forest, from three to six feet from the ground. They are composed externally of a light frame-work of roots, tendrils, and one or two twigs or a little green moss, with a more solid bottom of dry leaves braced on by means of tendrils and roots, the whole being bound together with fine cobwebs. The cup is usually somewhat elliptical—one in my collection measures 2·5 by 1·75 inches in diameter, and 1·5 in depth, and is lined with fine roots, fibres, and the thin seed-bearing stems of the "false maiden-hair." Two would appear to be the full number of the clutch, for, though I have taken a dozen or more nests with eggs, I have never seen one with more. The eggs are remarkably handsome, of a rich, almost pink, brown-madder ground-colour, deepest at the larger end, which is almost invariably surrounded by a clearly-defined zone of bold spots, streaks, and pencillings of a darker crimson-brown, intermingled with similar underlying markings of grey; a few of the markings stray into the upper and lower portions of the egg, which are otherwise clear. Another type is paler and more purplish in ground-

Text-fig. 2.



Nest of *Phyllostrophus flavistriatus.*
(Usual type, strung from leaves of *Dracæna.*)

colour, the streaks, particularly of grey, being finer and scantier and, though still arranged in a zone, tending to stray more completely over the larger end of the egg. A third type, of which I have one clutch only, is pure white in ground-colour, with merely a few pale madder spots and streaks encircling the larger end, in combination with the faintest of grey markings. Eggs which I have measured vary from 22·5 to 24 mm. in length, and from 16 to 17 mm. in breadth.

The sitting birds of this species are remarkably tame and bold, and I have, on more than one occasion, touched their bills as they sat and offered them insects; these they have never yet accepted, at least while I was in sight, but have remained unmoved. In January I photographed a sitting bird: the nest was about four feet from the ground in a dense thicket, so that I had to break away a number of small branches and twigs, some within a few inches of the nest; and, owing to the dry branches and other *débris* covering the ground, it was even then by no means an easy task to get the tripod and camera into position. But the bird sat through it all, only once, when a leg of the tripod suddenly slipped, raising one wing, as is its wont when hunting for insects, and once or twice making a faint sound of protest. Having given a two-minutes' exposure at three feet, I was encouraged to move the camera to within eighteen inches and there repeated the operation, finally leaving a small earthworm on the edge of the nest, under the bird's bill, as a token of my appreciation of her pluck. On another occasion an individual which had left the nest on my approach returned immediately and resumed her position on the eggs, facing round to me quite defiantly as I stood within three feet of her; while, on yet a third occasion, a bird sitting on a perfectly empty nest refused to move until touched, and then remained, abusing me heartily, within a few yards. This Bulbul is insectivorous rather than frugivorous. I have examined a number of the crops, and though Gumiti and other berries are sometimes present, insects—larvæ, small beetles, grasshoppers, a large bug, a spider, the ova of a large moth—preponderate. A female caught on her eggs and brought to me, nest and all, rather to my annoyance, by one of my natives, would from the first moment readily take larvæ and grasshoppers thrust between the bars of her cage, but refused bananas and other fruits. The length of this bird in the flesh varies from 7·5 to 8·25 inches; the iris is chestnut-brown; the legs and feet are silvery bluish- or slaty-grey.

54. PHYLLOSTROPHUS MILANJENSIS. Milanji Bulbul.

Xenocichla milanjensis Shelley, Ibis, 1894, p. 9, pl. i. fig. 1.

I first shot an example of this bird, a female, on the 31st of July, 1899, in a wooded kloof in Mafusi's country, and I subsequently observed it in that locality on several occasions. It is extremely common in Chirinda, though, owing to its solitary and retiring habits, it is not seen so frequently as the preceding species. When, however, in the hope of securing something new, I fired at a bird of sober plumage, half hidden in a dense mass of foliage, it nearly always proved to be this Bulbul; and it is in such situations, whether low in the undergrowth or high in the foliage of the larger trees, that it is usually found, sitting still or moving about quietly. I have, nevertheless, on a few occasions, usually on the first appearance of sunshine after continuous rains, seen it flying about briskly on the outskirts of the forest in pursuit of the beetles and other winged insects which such a change in the weather always brings out in abundance, and uttering at intervals a loud and unmusical "*cha-cha-cha-cha-cha-cha-cha*," rapidly repeated sometimes for many seconds on end; this note is also employed by the bird in calling or answering its mate.

I have only twice found the nest of this Bulbul; on both occasions it was placed about sixteen feet from the ground, near the top of a straight slender sapling, and, looked at from below, reminded me not a little of that of the English Missel-Thrush. In the case of the first nest, taken on the 25th of November, a large spray of grey "Old-man's-beard" lichen (*Usnea* sp. ?) was draped over the fork, evidently more with a view to disguise than as an essential portion of the nesting-material. The nest proper consisted of a thin but neatly-rounded cup (2·5 inches in diameter and 1·5 deep), of somewhat coarse twigs—largely those of the thorny climbing acacia—and one or two fine grass-stems and roots. The bird sat very persistently on every occasion on which I visited the nest, not leaving until the sapling was shaken. There was one egg only, measuring exactly 1 inch by 8·5 lines, slightly pyriform in shape, dull white in ground-colour, densely mottled with underlying grey freckles, and less densely with spots, streaks, and large blotches of two shades of brown. Except that it lacked anything in the shape of soft or delicate marbling, it reminded me somewhat of the egg of a Nightjar. What the full clutch is I am unable to say; certainly, in this case, no more would have been laid, for the bird's ovary contained no advanced eggs. In the case of the second nest, found shortly afterwards, the sapling was again too thin to scale, and on my return later with a saw I found that the nest had been destroyed by baboons. In material and construction, even to the lichen-drapery, it much resembled the first.

Out of ten stomachs of this bird examined two contained small fruits only; three, fruits and insects, the former preponderating in each case and including a small bean; four, insects only—an earwig, small larvæ (both coleopterous and lepidopterous), beetles and other small insects; and the tenth, *nil*. These birds come readily enough to a trap baited with a piece of guava. The bill is black, the iris umber, while the legs and feet are medium greyish-brown, with yellow soles; these vary, however, to some extent, having been dark grey-brown in one of my specimens, in another pale brownish-grey, and in a third (the Mafusi specimen) vandyk-brown. The length of the bird in the flesh varies from 7·75 to 8·12 inches. In the young bird the white stripes on the ear-coverts are dull and inconspicuous; the bill is sepia-coloured; the iris of a very deep brown-sepia; while the legs are light dusky grey, the joints between the plates broad and whitish; the soles brighter yellow than in the old bird. Length in the flesh 7·5 inches.

[This species, which makes an addition to the South-African Fauna, has been identified by Capt. Shelley, who originally described it in 1892 from specimens procured in Nyasaland.—P. L. S.]

55. SYLVIA SIMPLEX. Garden-Warbler.

I have seen a pair of Garden-Warblers on two or three occasions on the outskirts of Chipete. It is a well-known winter-visitor to the Transvaal (see Sclater, Birds S. Afr. ii. p. 82).

56. PHYLLOSCOPUS TROCHILUS. Willow-Wren.

One specimen of this species was secured, out of a party which was searching the twigs of a large *Rauwolfia* for insects.

57. SYLVIELLA WHYTII.

Sylviella whytei Shelley, Ibis, 1894, p. 13.

These birds are not uncommonly met with in the open woods, usually going about in small parties and resembling the preceding species in their habits.

[Identified by Capt. Shelley: new to the South-African Fauna.—P. L. S.]

58. APALIS THORACICUS. Bar-throated Warbler.

This is the ordinary Warbler of the forest and occurs in favourable situations throughout the district. I found it not uncommon at Mafusi. It is the *Apalis* referred to by Mr. Marshall in the 'Ibis' for April, 1900 (p. 200), as differing from *A. thoracicus* in having a lemon-yellow abdomen and vent. There is a larger broad-banded and a smaller narrow-banded bird, but I have been unable to satisfy myself as to whether these are specific or merely sexual differences.

The call of this Warbler is a loud cheerful "*Pilly-pilly! Pilly-pilly-pilly!*" but more commonly, as it creeps about amongst the dense undergrowth or makes short flights after insects, it utters a long-drawn "*chwee chwee.*" The nest is usually half hung, half supported in a shrub or in tall herbage, from eighteen inches to three feet from the ground, in the forest undergrowth. A favourite place, however, is a thorn-hedge on the outskirts of the forest, and I once found a nest in a small shrub growing in the bottom of a game-pit. It is usually of a neat oval shape, domed, and almost entirely composed externally of a thin layer of moss, strengthened scantily with fine grass and occasionally a very little lichen: it is lined throughout, including the dome, sometimes sparingly, at other times thickly, with fine vegetable down (usually from the pappi of a large latex-yielding liana common in Chirinda), intermixed with the seed-bearing stems of the "false maiden-hair" and other such fine material. An average nest in my collection measures 3 inches from front to back, 4 inches in depth, and 2·75 in width; opening 1·5 wide by 1·75 deep; diameter of cup 2 inches. One nest had a small back entrance in addition to the usual opening. The eggs are of two distinct types, and this at first appeared to confirm my idea that there were two distinct forms of this bird, but I have since found two clutches which afford a connecting-link, and in any case more evidence is required. The first type of egg is pale blue with large spots of brown-madder, chiefly about the thicker end, and belongs, should there be two varieties, to the narrow-banded bird, which I have twice shot from the nest. The second much resembles the egg of the English Wren, being pure white in ground-colour, minutely freckled and spotted with reddish brown and a little purple-grey, again chiefly about the larger end. I have twice noted that the birds sitting on these eggs have the broader band. The intermediate forms to which I have referred were (1) pure white with the larger blotches, and (2) bluish white with the minute spots. Three is the number of the clutch, and the eggs measure from 15 to 17 mm. in length and 12 in breadth. The birds themselves, measured in the flesh, vary from 4·25 inches (narrow-banded) to 5·15 (broad-banded); bill black; legs pale brownish pink; iris pale Naples yellow, sometimes with a tinge of green. The crops examined have contained grasshoppers, larvæ (both of moths and beetles), moth-ova, "Gumiti"-seeds, and small flies.

59. Apalis chirindensis. Chirinda Bar-throated Warbler.

Apalis chirindensis Shelley, Bull. B. O. C. xvi. p. 126 (1906).

I have frequently watched small parties of these little Warblers in the forest, where they keep chiefly to the higher branches of the trees as they search for insects amongst the flowers and leaves, after the manner of White-eyes. The crops examined contained small beetles and flies. Length in the flesh from 4·8 to 5·25 inches.

[This species, lately characterized by Capt. Shelley, is new to the Fauna of South Africa. He has supplied the following notes on it:—

"*Apalis chirindensis* is similar to *A. cinereus*, but differs in having the forehead and crown of the same shade of dusky grey as the entire upper parts, and in the white of the tail being confined to rather narrow ends of the four outer pairs of feathers; most of the under wing-coverts and inner margins of quills white, with the remainder of the under surface of the quills and the pinion dusky black; under parts white, somewhat washed with a brownish shade. Iris pale orange-brown; bill blackish; legs pale pinkish brown. Length in the flesh 5·25 inches (now 4·9)."

The specimen described was obtained in the Chirinda Forest at an altitude of 1000 feet on June 14th, 1905.—P. L. S.]

60. Prinia mystacea. Tawny-flanked Wren-Warbler.

Commonly met with in the open grass-veld and Jihu, but more especially near "vleis" and streams. Several clutches of eggs, unfortunately not identified, in a collection made recently by a neighbour exactly resemble those of *Prinia mystacea* taken by myself a few years ago near Salisbury, and I have recently (March 5th and 25th) had two nests brought to me containing eggs, one with the sitting bird. Both were composed of fine grass-blades strongly woven together and forming a deep semi-domed sac (external diameter 2·5 inches, total depth 4), with the opening practically at the top; in one a number of small downy pappi were worked into the general structure, externally and also as a ceiling to the somewhat diminutive dome, but none entered into the lining. The leaves of the twigs supporting the nests had been perforated along their edges by the bird's bill and were neatly sewn to the nests by means of fine grass-blades passing through the openings. The eggs were three in number, those of the sitting bird which was brought to me measuring 17 by 12 mm., and being pale grey in ground-colour, faintly clouded and obscured with palest purplish brown and covered with irregular fine streaks of darker shades of the same colour.

61. Cisticola cinerascens. Grey Grass-Warbler.

Our commonest Grass-Warbler, at all events in the vicinity of Chirinda. A nest was brought to me a few days ago (March 11th), together with the female; it contained three eggs, slightly set, white, with blotches, mostly large, but some in each case tending to form a rough zone round the larger end, of light purplish brown and purplish grey; they averaged 19 mm. in length by 13 in breadth. The nest, which was supported between high weeds, measured 3 inches in diameter by 4·25 in depth, the cup 2 inches in diameter, and consisted chiefly of grass-blades, intermixed with down and bound together with spiders' webs; the interior was warmly lined with down and one or two small feathers, and over the top of the nest, which was domed, were bound three large leaves, greatly strengthening the structure.

I have observed this bird at sunrise in the grass-jungle, sitting on a tall grass-stem or projecting custard-apple twig, with wings drooping and back-feathers and tail erected, thawing in the early rays and uttering now and then a clear musical call.

62. Cisticola rufa. Fraser's Grass-Warbler.

A Warbler recently obtained by Mr. Stanley in the neighbourhood of Mafusi has been identified by Mr. W. L. Sclater as belonging to this species.

63. CISTICOLA SUBRUFICAPILLA. Grey-backed Grass-Warbler.

Apparently fairly plentiful, particularly in grass-jungle. Several examples have been brought to me of late, limed by a native in the neighbourhood of Chipete. This Warbler possesses quite a characteristic call, a loud repeated "*Pee! pee!*" with the second note pitched in a lower key than the first, which it pipes from the top of a bush or stake.

64. CISTICOLA NATALENSIS. Natal Grass-Warbler.

A fairly plentiful bird in the grass-country, where it is often seen perched on some small tree. The crops examined contained beetles and grasshoppers.

65. TURDUS CABANISI. Cabanis's Thrush.

This is a resident species and is the common Thrush of Chirinda. It is a shy bird and mostly frequents the darker thickets of the forest, where it is often to be found feeding on the ground, flying up into the undergrowth when disturbed. Two stomachs examined contained only "Gumiti"-seeds, and I once trapped this bird with a piece of guava as bait. It was probably breeding in December, as during that month a pair of birds used to fly round me in great agitation whenever I approached a certain spot. In spite of careful search I failed to find the nest, which was probably placed high in one of the forest-trees.

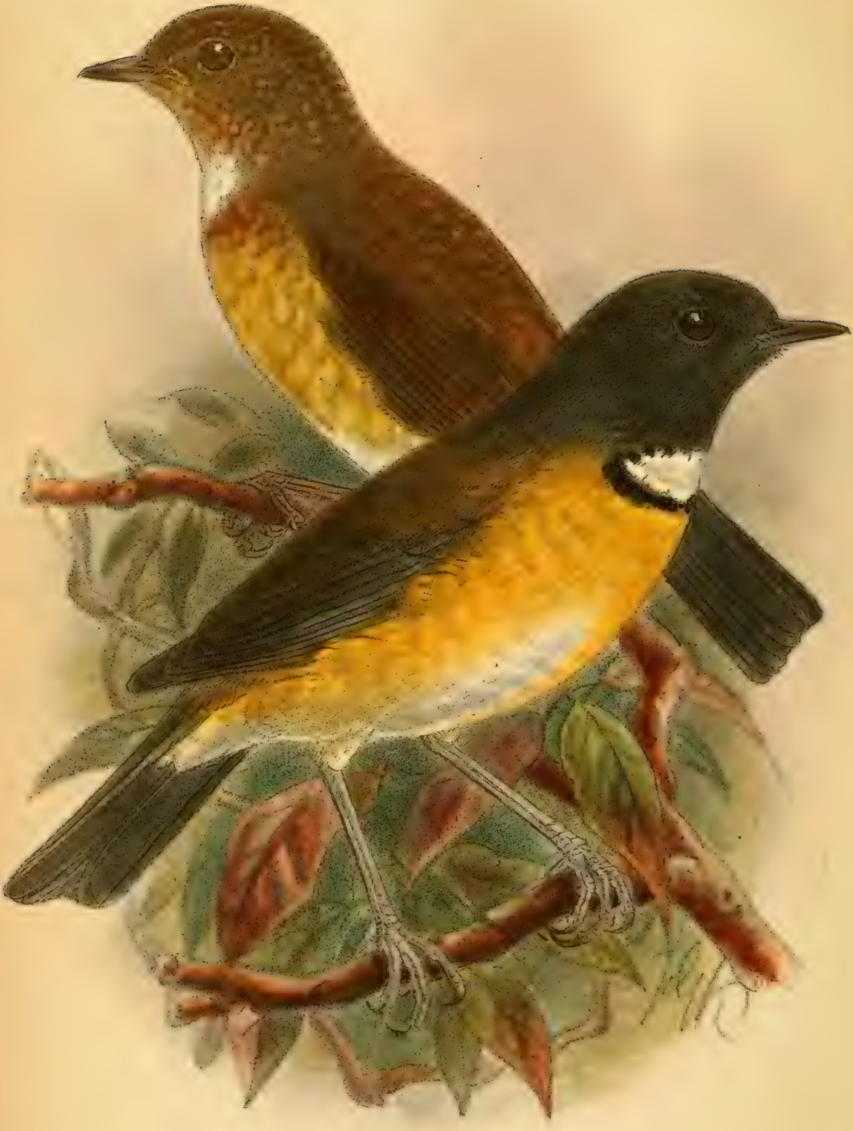
66. TURDUS LIBONIANUS. Kurrichaine Thrush.

This species is fairly plentiful in the kloofs and the somewhat denser portions of the open woods throughout the year, but is not found in Chirinda. A bird trapped in February had evidently been sitting. The stomachs that I have examined contained beetles, larvæ (Melalonthid and other), a locust, grasshoppers, a green shoot (probably of a germinating seed), and, in one case, seeds.

67. MONTICOLA sp. inc. Rock-Thrush.

Of this bird I have shot only one specimen, which is in immature plumage. It was one of three which were feeding on the ground in open "Manzhanshe" wood and rose into

Ibis 1907 Pl. I.



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Bale & Danielsson, L^td. imp

ERITHACUS SWYNNERTONI.

the trees on being disturbed. It measured in the flesh 7 inches, but was very stoutly built in proportion; its stomach contained a beetle and the *débris* of other insects.

68. Erithacus swynnertoni. Swynnerton's Robin. (Plate I.)

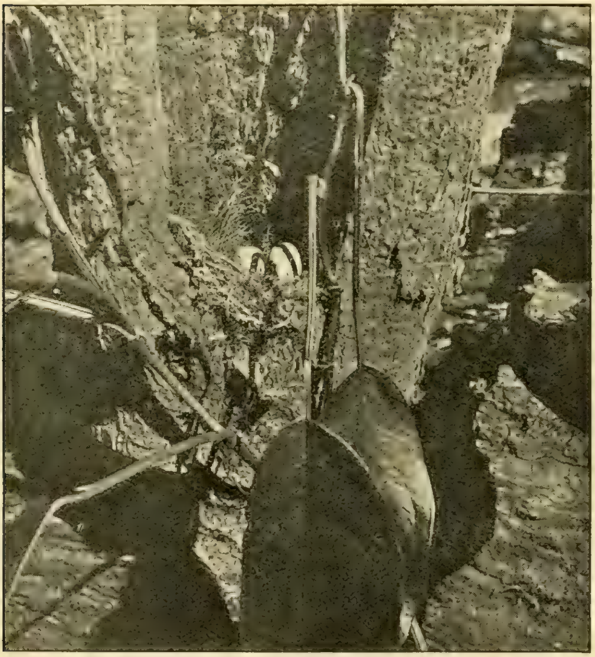
Erithacus swynnertoni Shelley, Bull. B. O. C. xvi. p. 125.

This little bird is one of the commonest of our resident forest-species, and, in spite of its comparative shyness, resembles the English Robin not a little in its general habits. It is purely a ground-feeder, and I have frequently watched a pair searching for food in the open rides of the forest, where a fallen log is a favourite perch. It becomes more shy during the breeding-season, when the sitting bird will leave the nest on the slightest alarm, and, joined by her mate, anxiously hop about on or near the ground, a few yards away, but without shewing herself, uttering all the time a long-drawn querulous little note. When the young are hatched, however, the parents become bolder, shewing themselves freely within a few feet of the intruder and heaping him with reproaches. A slight modification of the note may be heard throughout the winter months, and I have occasionally heard a little song which I believe to come from this bird.

The nest is usually placed from three to five feet from the ground in a clump of Dracænas, against the stem, and is supported below by the horizontally projecting leaves; it is composed of moss, or, more frequently, of dry and skeleton leaves, or sometimes both, held together by coarse leaf-stems and a few roots, or occasionally one or two twigs or grass-blades. The cup, which measures 2 inches or 2 by 1·5 in diameter and 1·5 in depth, is neatly lined with fine roots and fibres. Another not unusual nesting-place is the top of a felled sapling which has sent out four or five fresh shoots. The nest is placed between these, and, especially when partially hidden by foliage, looks like a mere continuation of the stem, the birds being careful in this case to allow little or no material to hang over the edge. Once only have

I found a nest placed elsewhere than in one of the two positions described. This nest (text-fig. 3) was in a small hollow stump, two feet from the ground, and consisted solely of a cup, the hole being lined with fine black stems resembling those of the maiden-hair fern (which, however, has not yet been found in Chirinda). In front were woven in a few half-skeletonized leaves of the same shade of yellow as the bark and much resembling it, bringing the cup flush with the outside of the tree.

Text-fig. 3.



Nest of *Erithacus swynnertoni* (in hollow stump).

The eggs of this bird are invariably two in number, and vary very little in coloration, all that I have seen having been pale blue-green in ground-colour and covered with numerous red-brown spots and freckles, usually denser at the thick end. Exceptionally these are collected into a rich zone or patch at the larger end, leaving the rest of the shell comparatively free. Those in my collection vary from 20 to 23 mm. in length and from 14 to 15 mm. in breadth. The bird varies from 5 inches to 5·5, measured in the flesh. Iris umber-brown, legs pinkish grey; the iris of the immature bird is darker, being hardly distinguishable from the pupil, and the legs are white, tinged with purple on the toes.

[Capt. Shelley has furnished us with the following notes on this remarkable bird :—

"*Adult male.* Head and neck deep grey, slightly darker on the crown and down the centre of the throat, which ends in a large white patch entirely surrounded by black; back and scapulars yellowish brown; wings and tail deep grey, the inner webs of the quills dusky blackish with whitish inner edges; greater portion of the inner under-coverts rufous-shaded yellow like the axillaries; chest and sides of the body slightly darker rufous-shaded yellow, separated from the white base of the throat by a sharply defined narrow black band; centre of abdomen and under tail-coverts fading into pure white; thighs grey with a little white towards the tarsi. Iris brown; bill black; legs pinkish grey. Length 5·2 inches.

"*Adult female.* Differs from the male only in the upper parts being of a slightly more olive shade; the feathers of the crown, back of neck, lesser wing-coverts, quills, and central tail-feathers having their edges somewhat washed with olive. 'Iris brown; bill black; legs pinkish grey.'

"*Young.* Differs in the colouring of the head, neck, and wings. Feathers of the forehead and crown dark brown, with small subterminal rufous spots; remainder of head and hinder half of neck paler and more greyish, with similar but rather larger rufous spots; the throat fades into white on the middle third and then into a dark rufous-brown collar next to the crop; some of the feathers of the fore-mantle and median wing-coverts with rather large rufous spots; quills with their outer edges brownish and their inner edges scarcely paler than their general under surface. 'Iris sepia-coloured, darker than in the adults; bill dusky brown, pale at the base; legs white, with a purple tinge on tarsus and knee-joint.' Length in the flesh 5·3 inches.

"This new bird, which I have had the pleasure of naming after its discoverer, is perhaps most nearly allied to *Erithacus gutturalis*, but in size and structure agrees perfectly with *E. rubecula*, with the exception of the bill being slightly longer. It somewhat resembles *Tarsiger* in the colouring of the head, neck, back, and wing, and in having a white mark on the throat, but it has no white on the head; it differs from *Tarsiger* in the bill being slightly narrower, rictal bristles almost absent, wings more rounded, and in having no pattern on the tail. It may be a connecting-link between *Erithacus* and *Tarsiger*, but in my opinion most nearly approaches the former genus."—G. E. S.]

69. Pratincola torquata. South-African Stone-Chat.

One of the commonest birds of the grass-veld, where it may usually be found perched on the bare top of some small fire-killed sapling or bush, from which it makes short flights in pursuit of insects. An upright stake in cultivated ground or the leader of a young cedar are also favourite perches. The native name, signifying "ply the hoe," has been given to the bird in allusion to its habit of commencing to call at earliest dawn, inviting men, they say, to come out and commence the day's work; and its local Dutch name, "Dag-bruiker," also has reference to its early habits.

70. Saxicola pileata. Capped Wheatear.

This is a plentiful winter visitor.

71. Cossypha natalensis. Natal Robin-Chat.

This charming little bird is a common summer-visitor to Chirinda and the neighbouring forest-patch of Chipete, where its two trilling notes, as it passes along through the undergrowth, may be constantly heard during the breeding-season. It appears not to occur outside the forest-patches. The natives regard it in the light of a "will-o'-the-wisp," stating that if a man should follow one it will lure him on into the heart of the forest and there leave him. Its nest—

I have examined a number this season—is placed either, like a Nightingale's, on the ground amongst the dry leaves at the foot of a tree or in a depression of the trunk, seldom more than three feet from the ground. It is composed externally of coarse twigs, leaf-stems, an occasional grass-blade or a little moss, and quantities of dry and skeleton leaves; most of the material, when the nest is raised from the ground, being massed in front. The cup, which is 2·5 inches in diameter, is lined with roots, fine grasses, &c., and the eggs exactly resemble those of the Nightingale, being of a uniform olive-brown, with occasionally a few darker markings shewing very faintly towards the larger end. I have also twice found eggs of a comparatively pale grey-green, this again corresponding to an uncommon type of the eggs of the Nightingale. In length they vary from 20 to 25 mm. and in breadth from 14·5 to 17 mm. I once found a nest in a thick clump of *Dracæna*, close to the trunk of a large tree and about fifteen inches from the ground. The bird is shy, usually flying off at an intruder's approach, but on two occasions has allowed me to stand and watch it from within a few feet. This species is wonderfully attractive with its large soft eyes and its orange and blue plumage. The young, with their mottled black and yellow colouring, are very different in appearance to the parents.

72. Cossypha heuglini. Heuglin's Robin-Chat.

Though not very frequently seen, the results of my trapping operations prove this to be by far the commonest bird of the wooded kloofs and of the thickets which frequently border our streams. In Chirinda itself I have only twice found it, on both occasions in the same narrow projecting spur of forest, near water. The stomachs examined have nearly always contained beetles, less frequently seeds, occasionally other insects, such as termites and harvesting-spiders, and once small bones, apparently of a lizard. The notes of this bird are flute-like and remarkably pleasant. Its length in the flesh varies from 7·5 to 8·8 inches.

73. Cossypha caffra. Cape Robin-Chat.

I have seen only a single specimen of this bird, shot last June in a patch of grass jungle and thorns close to Chirinda. It was moving quietly about in the rank vegetation. Length in the flesh 7 inches. The stomach contained small beetles.

74. Tarsiger stellatus. White-starred Bush-Robin.

Extremely common in Chirinda, though, owing to the fact that it searches for its food on the ground amongst the denser undergrowth, it is comparatively seldom seen. It is a silent bird, and on two occasions I have seen it watching me boldly—though shy enough as a rule—from a neighbouring twig or log, without uttering a sound or shewing other signs of agitation, while I examined its nest. This is large and domed, with an elliptical opening in the side, and is placed on the ground in a clump of ferns or amongst dry leaves, sometimes at the foot of a tree, while it is so well assimilated to its surroundings that the specimens which have come under my notice could not but have been taken for mere excrescences in the leaves and moss littering the ground, had not the bird flown out. A typical nest now before me consists of dry leaves, moss, a little fine grass, and a few small roots and twigs, the latter including fine stems of the thorny climbing acacia so common, unfortunately, in Chirinda, arranged, doubtless as a protection, round the opening; it is lined with fine grass and fibres; the opening is 2·5 inches wide by 2 deep; the diameter of the cup 3 inches from front to back; the total depth of the nest 5 inches. Three would appear to be the full number of eggs, which are not unlike those of the English Robin, being pure white in ground-colour freckled and blotched with brownish red: the markings are in some specimens fairly evenly distributed, in others collected at the larger end; in drying, some of the markings assume a greyish tinge. The eggs in my collection measure from 21·5 to 23·5 in length, and from 14·5 to 15·25 mm. in breadth.

In May, out of nine stomachs examined one contained "Gumiti"-berries only, two insects only, and the remainder insects and "Gumiti"-berries; the insects included a large caterpillar resembling that of *Bombyx neustria*, a beetle-larva, and ants and beetles. In June and the beginning of July eight stomachs were examined; all (except one, which was empty) contained insects and so forth—pupæ, a caterpillar, beetle-larvæ, flies, a termite, a scorpion, a wire-worm, ants, and beetles,—while in two only were there Gumiti-berries as well. These berries were plentiful in May, but are over in June, with the occasional exception of some belated twig which has retained its fruit after the general crop has fallen. Thus during May I found these Tarsigers to be very largely frugivorous (and they would be so for half the year, for the Gumiti-season is a long one), but in June they became insectivorous, though remaining ground-feeders. I have only once found flies in the stomach. Legs ochreous grey; iris brown. Length in the flesh 6 inches.

75. BRADYORNIS MURINUS. Mouse-coloured Flycatcher.

This bird is abundant in the open woods. Three stomachs which were examined contained a large locust, a caterpillar, a mantis, ova (probably of a large moth), termites, and small beetles.

76. MUSCICAPA CÆRULESCENS. Blue-grey Flycatcher.

A female, trapped recently by a bait of beetle-larva in a wooded kloof close to my homestead, is the only specimen of this bird which has come under my notice. Length in the flesh 6·3 inches. Contents of stomach, large black ants and beetles.

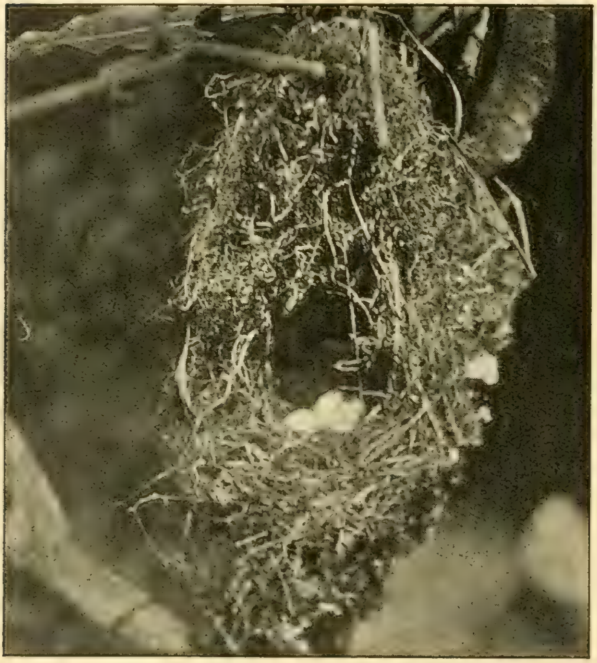
77. HYLIOTA AUSTRALIS. Mashonaland Flycatcher.

Occasionally seen in the open woods, never in the forest.

78. SMITHORNIS CAPENSIS. Cape Broadbill.

To judge by the results of my trapping operations, this Flycatcher must be fairly plentiful in the wooded kloofs; and during the past season I have found three nests in Chirinda. These were all more or less alike in composition, being in each case a bulky and untidy domed structure of leaves and grass-blades, a little moss (externally), and a few small roots, stems, and fibres, roughly woven and cemented together by means of spiders' webs, the whole being slung by a broad band of green moss, stiffened with spiders' webs and a very few small roots and stems, from a horizontal twig at three, six, and nine feet respectively from the ground. There was no lining, the general material of the nests being merely worked into a smooth cup, with a diameter, front and back, of 2 inches, and a depth from the opening downwards of 1·5. From every nest was suspended a long untidy tail of in one case moss, in the others grass and weed-stems, bringing the total length to 18 inches or even 2 feet, and giving the whole fabric much the appearance of the chance lumps of moss, orchids, and dry leaves which one commonly finds hung

Text-fig. 4.



Nest of *Smithornis capensis.*

up in the undergrowth. The clutch in each case consisted of three glossy eggs, which were pure white, with the beautiful semitransparent appearance of those of a Woodpecker, and of a long oval form; they varied from 21·5 to 23 mm. in length and from 15 to 16 mm. in breadth. I found the birds exceedingly shy and stealthy, slipping down into the undergrowth at the slightest alarm and slinking away unseen to a considerable distance, whence they silently watched the proceedings from the branch of some small tree. It was consequently only as the result of repeated visits and long watching that I succeeded in identifying the nests. In one case two of the eggs disappeared, but the bird continued to sit on the third. The stomachs always contained numbers of beetles, and in one case a large black hornet. Length in the flesh from 6 to 6·1 inches.

79. Platystira peltata. Green-throated Flycatcher.

I shot a male of this handsome little Flycatcher in a forest-patch in the Tchikamboge Valley in August 1899, and subsequently watched a pair for some time in the open bush not far from Makwian's kraal, again securing the male. Eye-wattles bright scarlet. Contents of stomachs, small beetles. In all probability, this bird will prove to be not uncommon in Mafusi's country.

80. Pachyprora dimorpha. Milanji Flycatcher.

Pachyprora dimorpha Shelley, Ibis, 1903, p. 18 (Nyasaland).

An aristocratic little species, and the common Flycatcher of the forest-patches and densely-wooded kloofs. Its quaint little song sounds as though it were being produced by clockwork, and is frequently heard in Chirinda. The birds—they go about in pairs throughout the year—will take up their station on some twig commanding a comparatively open space, and thence make short flights after passing insects: small beetles, caterpillars, and a large beetle-grub were the contents of the stomachs examined. I found a nest containing three eggs on the 18th of November; they were bluish white, with a clearly-defined zone of dark brown, pale brown, and pale violet-grey spots and blotches round the larger end, a few of the pale brown blotches appearing also on other portions of the egg, which measured 19 by 14·5 mm. The sitting bird allowed me to watch her from within two yards of the nest, which was placed in the fork of a small sapling about three feet from the ground; it was neatly made of soft grass-blades and fibres, bound with abundant spiders' webs into a compact though thin and shallow cup, and thickly lined with the finest of dry branching stems, probably from some low-growing forest-plant. The outside of the nest was ornamented with scraps of blue-green lichen affixed by means of web.

81. PACHYPRORA MOLITOR. White-flanked Flycatcher.

The common *Pachyprora* of the open woods; it does not occur in the forest. The stomachs examined contained small beetles and flies, ants, large diptera, coleopterous larvæ, and a wasp.

82. TROCHOCERCUS ALBONOTATUS. White-marked Flycatcher.

Trochocercus albonotatus Shelley, B. Afr. i. p. 99.

These birds are very plentiful in Chirinda, where it is pretty to watch a pair of them at play, tumbling about in the air, spreading their tails to their fullest extent, and uttering a weak but pleasing note. The nest (text-fig. 5) bears some resemblance to that of *Pachyprora capensis*, but, apart from the difference in the material employed, the walls are somewhat thicker and more rounded and the cup half as deep again. It is usually placed in the fork of some low shrub or sapling, two or three feet from the ground, and consists of a perfectly neat and symmetrical cup of soft green moss bound into a fine felt by means of spiders' webs and decorated outside with scraps of silvery lichen, the mottled appearance thus imparted to it combining with its small size to render it inconspicuous; it is lined within with lichen and a few stems of "false maiden-hair." I have only once secured the eggs—on December 28th—two in number, of the same size as those of *Pachyprora dimorpha* and of a dirty-white colour, blotched and spotted with greenish olive (fading later to olive-brown) and grey, chiefly at the larger end, which, in one egg, was surrounded by a distinct zone. I had found nests with young birds a few weeks previously. The female was shy, leaving the nest at once on being approached, and flying off to some little distance, where she commenced her usual evolutions quite unconcernedly, probably to divert attention from the nest. A crop examined contained small beetles and flies.

Text-fig. 5.

Nest of *Trochocercus albonotatus.*

[Apparently new to the South-African Avifauna.—P. L. S.]

83. Terpsiphone plumbeiceps. Lead-headed Paradise Flycatcher.

Tchitrea plumbeiceps Reichen. Vög. Afr. ii. p. 510.

Till recently I had considered this species to be *T. per-*

spicillata, and had only taken the trouble to secure one skin, but it proves to belong to *T. plumbeiceps*, which Mr. W. L. Sclater has just identified for Mr. Stanley. Probably both forms will be found to occur here. It is a playful little Flycatcher, and may be found throughout the district, but appears to be especially common at Mafusi and in the Jihu, where, during a recent visit, I found it going about in family-parties. It is also sometimes found on the outskirts of Chirinda. The tail-feathers of the Paradise Flycatcher used to be reserved for the exclusive use of Gungunyana's wives.

[Apparently new to the Fauna of South Africa.—P. L. S.]

84. DICRURUS AFER. Fork-tailed Drongo.

This is the "Roek-Vogel" (Smoke-bird) of the local Dutch, so called on account of its being always to the fore, in flocks of five, eight, or even eleven individuals, when a grass-fire is in progress, dashing backwards and forwards through the smoke after the fleeing insects. The crops of two shot in June, while thus engaged, contained a wasp, a cicada, and numerous beetles and flies. The habit of this species, already referred to, of assuming the leadership of the flocks of small birds so often met with in the open bush, has led to its being called by the natives "Induna yezinyone"—the General of the Birds. It will attack all owls, hawks, and snakes which approach its charge; and even when one of them has seized its prey the Drongo will frequently succeed in making it drop the captive, by swooping down on the back of the marauder, and generally harassing and blinding it. According to the natives, a Drongo is never bitten by a snake, owing to its confining its attack to the back of the head and carefully avoiding the fangs. It is said also to bait—but at a more respectful distance—lions, leopards, and other wild animals, betraying their presence to the natives by its excited cries and actions.

85. DICRURUS LUDWIGI. Square-tailed Drongo.

This is the common Drongo of the forest-patches, to which it confines itself. It possesses to the full the bold habits and the loud and varied cries of its near relative, *Dicrurus afer*, and quite takes its place in Chirinda as the "Induna yezinyone," for not only will it fearlessly defend the rights of its own followers, but is also perfectly ready to play the knight-errant to *any* forest-damsel in distress. Only the other day, on going up to a sapling in which a *Haplopelia* was sitting on her eggs, I was vigorously assailed by a pair of Drongos, one of which flew straight at my face, and only turned back when within a yard of me: they were backed, with noise rather than action, by a family-party of Bulbuls. Yet the Doves are not of the Drongo clan! At the same time, as I have already pointed out, the forest Drongo, however willing, can be of little actual service to his followers, for they are already well-protected from hawks. The stomachs examined contained beetles, diptera (large and small), and other insects.

86. Campophaga nigra. Black Cuckoo-Shrike.

I secured a female, of which the ovary contained a fairly-advanced egg, in November last, on the Lower Umswirezi. It was sitting quietly in a large shady thorn-tree near the river; and I had the good fortune to bring down a specimen of *Chrysococcyx klaasi* with the same shot. The stomach contained the *débris* of small insects.

87. Graucalus pectoralis. Black-chested Cuckoo-Shrike.

By no means an uncommon bird in the open woods, and an occasional visitor to the outskirts of Chirinda.

88. Hirundo dimidiata. Pearl-breasted Swallow.

Fairly common throughout the year. A Swallow of any species, charred and ground to powder, is still looked on by the natives as a most powerful charm; and in the fighting-days of a few years ago these birds were much sought after by the young Manguni warriors, the ashes, rubbed into cuts in the knees, being supposed to impart extraordinary swiftness and endurance, and at the same time a charmed life and the power of infallibly slaying one's opponent, though not immunity from wounds.

89. Hirundo atrocærulea. Blue Swallow.

In March I noticed a flock of these birds several times, flying in and out of the high trees on the outskirts of Chipete. They roosted every night on the long grass-stems in a sheltered kloof hard by, retiring to rest at or before sunset, and not rising till after the sun was well up.

90. Hirundo puella. Smaller Stripe-breasted Swallow.

This is our commonest Swallow, remaining with us throughout the year and nesting under ledges in the rocky "kraantzes" throughout the district. Baboons are said to destroy a large proportion of the nests built in such situations. Two or three pairs of these Swallows build annually in my verandah.

91. Psalidoprocne orientalis. Eastern Rough-winged Swallow.

In the summer months, at all events, this species appears to be nearly, if not quite, as common as the preceding, from which it is generally distinguishable by the flash of its under wing-coverts as it hawks backwards and forwards, usually in the neighbourhood of the forest-patches.

[To be continued.]

III.—*On a Collection of Birds from Western Persia and Armenia.* By Harry F. Witherby[*]. *With Field-Notes by* R. B. Woosnam.

(Plate II.)

The birds described in the following pages were collected by Mr. R. B. Woosnam, who accompanied Colonel A. C. Bailward during a journey from the Persian Gulf through Western Persia to Armenia and across that country to the Black Sea.

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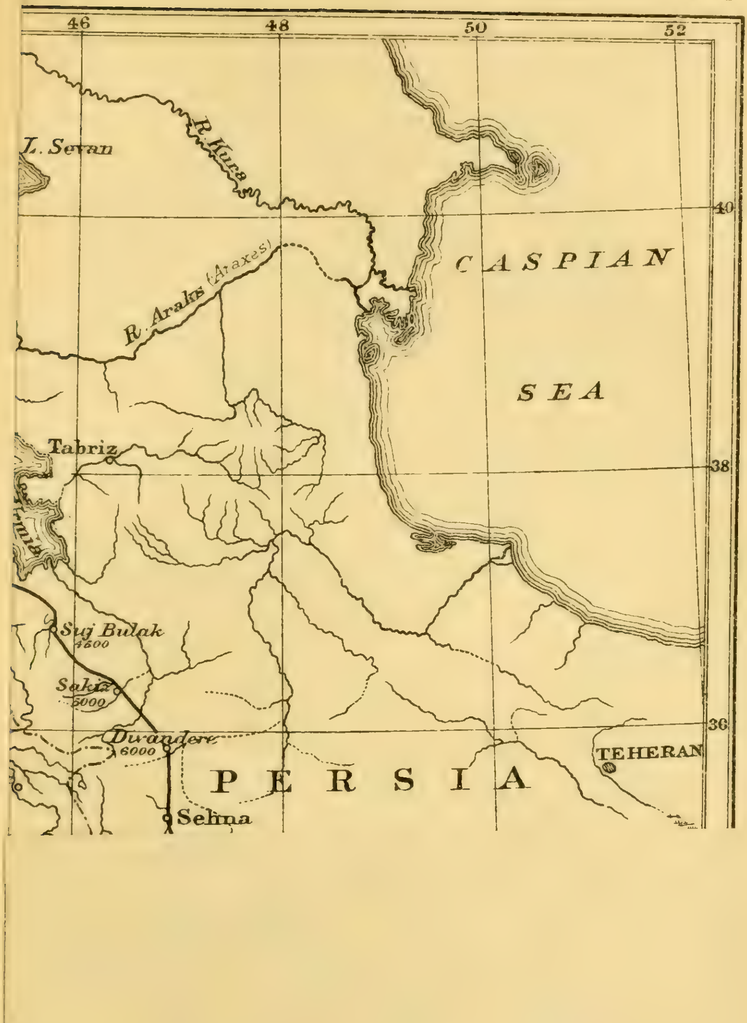
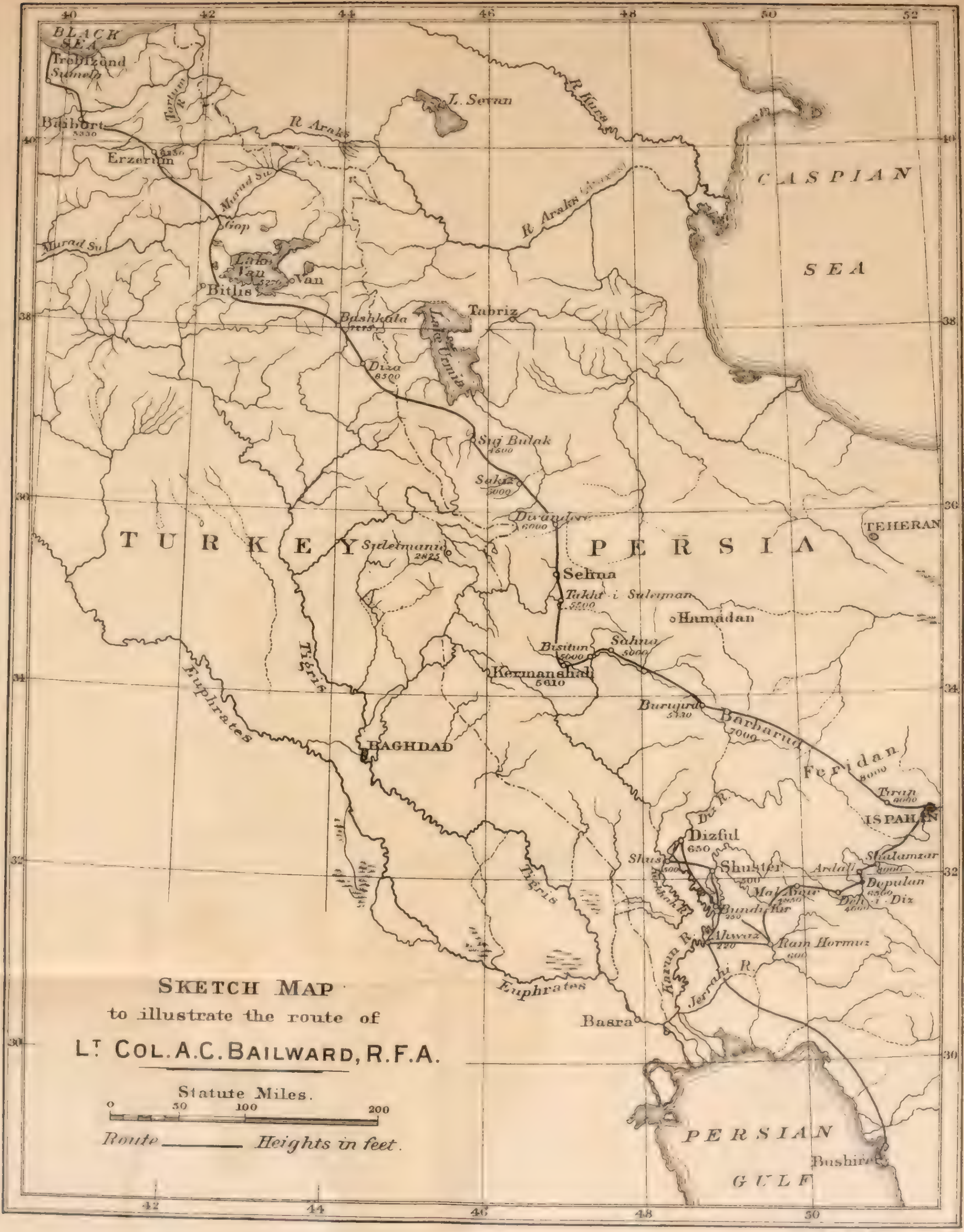
[*] [The Editors are not responsible for the nomenclature employed in this article.—Edd.]


46
48
50
52
40
38
36
L. Sevan
R. Kura
R. Araks (Araxes)
CASPIAN
SEA
Tabriz
Suj Bulak
4600
Sakiz
5000
Duandere
6000
PERSIA
TEHERAN
Sehna



SKETCH MAP

to illustrate the route of

L^T COL. A.C. BAILWARD, R.F.A.

Statute Miles.
0
50
100
200
Route
Heights in feet.
BLACK SEA
Trebizond
Sumela
Tortum R.
Baiburt
5330
Erzerum
6350
R. Araks
L. Sevan
R. Kura
Murad Su
Murad Su
Gop
Lake Van
5270
Van
Bitlis
R. Araks (Aras)
CASPIAN SEA
Tabriz
Bashkala
Lake Urmia
Diza
6500
Sauj Bulak
4500
Sakiz
5000
Divandara
6000
TEHERAN
TURKEY
PERSIA
Suleimania
2825
Senna
Takht-i-Suleiman
5300
Hamadan
Tigris
Bisitun
5000
Sahna
5000
Kermanshah
5610
Euphrates
Burujird
5330
Barbarud
7000
BAGHDAD
Feridan
8000
Tiran
6000
ISPAHAN
Diz R.
Dizful
650
Shus
500
Karkhah R.
Shuster
500
Ardali
Shalamzar
6900
Dopulan
6500
Mal Amir
Dihi-i-Diz
4000
Bundukir
250
Ahwaz
220
Ram Hormuz
600
Karun R.
Jerrahi R.
Tigris
Euphrates
Basra
PERSIAN GULF
Bushire
40
42
44
46
48
50
52
40
38
36
34
32
30

Colonel Bailward, who arranged that Mr. Woosnam should go with him in order to procure birds and mammals, has most generously presented the collection to the British Museum. The authorities of the Museum have very kindly allowed me to work out the birds, a task which has been a source of great pleasure and interest to me, owing more particularly to the fact that I had already made collections in part of the same country (*cf.* 'Ibis,' 1903, pp. 501 *et seqq.*).

The series of birds obtained by Mr. Woosnam comprises about 350 specimens of some 165 forms. It contains practically no novelties, and, so far as species go, adds little to previous records; but it has two features of considerable merit. The one, interesting chiefly to the systematist, is that it has provided material for a discussion of many of the forms described during the last year or two by Baron Loudon and M. Sarudny in the 'Ornithologische Monatsberichte' and the 'Ornithologisches Jahrbuch'; the other, of wider interest, is that the collection in itself forms an admirable object-lesson of the restricted distribution of certain geographical forms.

A glance at the accompanying sketch-map of the route taken by the Expedition (Plate II.) will shew that the collection was made in a comparatively narrow strip of country running for a very considerable distance from the south-east to the north-west. Except for the first portion of the route, which was on the coastal plain, the journey was through a mountainous district, where the altitudes throughout averaged much the same, viz., from about 5000 ft. to 10,000 ft. The character of the country all along the eastern side of the range is, as Col. Bailward tells me, much the same, yet about lat. 35° N. there seems to be a dividing-line between the avifauna of the north and that of the south. In the mountains north of lat. 35°, Mr. Woosnam obtained a number of birds which, so far as I know, are not found in the mountains to the south of that degree; while in some cases the forms from the northern portion of the route are represented in the southern portion by others nearly allied to them.

Birds collected on the journey north of lat. 35° only.	Representatives south of lat. 35°.
Phylloscopus nitidus.	
Accentor collaris.	
Cinclus cinclus caucasicus.	*Cinclus cinclus persicus.*
Sitta neumayeri neumayeri.	*Sitta neumayeri tschitscherini.*
Parus major major.	*Parus major blanfordi.*
Parus ater.	
Anthoscopus pendulinus.	
Regulus regulus.	
Anthus spinoletta spinoletta.	*Anthus spinoletta coutellii.*
Calandrella minor pispoletta.	*Calandrella minor minor.*
Ligurinus chloris.	
Linota flavirostris brevirostris.	
Pyrrhula pyrrhula.	
Passer montanus.	
Emberiza buchanani.	
Colœus monedula collaris.	
Garrulus glandarius krynicki.	*Garrulus glandarius atricapillus.*
Perdix perdix.	

There are other birds obtained by Mr. Woosnam south of this line which are, I believe, represented by different forms north of the line, although he did not obtain specimens of the latter. Such are :—

Dendrocopus medius sancti-johannis.
Gecinus viridis innominatus.
Sylvia orphea jerdoni.
Sitta europæa persica.
Parus lugubris dubius.
Parus cœruleus persicus.
Galerida cristata magna.
Passer domesticus indicus.
Emberiza cinerea semenowi.

In the following pages the references to Dr. Blanford's 'Eastern Persia,' vol. ii., are given, for the sake of brevity, as B., and in the same way my article in the 'Ibis' for 1903 is referred to as W. An asterisk prefixed to either of these initials denotes that the Author did not obtain specimens of the bird in question.

HIEROFALCO HENDERSONI (Hume).

♀. May 27, Kermanshah, alt. 6000 ft.

"Very few seen."—R. B. W.

Dr. Blanford did not obtain any falcons in Persia, but he thought (*op. cit.* p. 104) that this species might be found in the north-east of that country.

Falco subbuteo L. [B. 105; W. 561.]
♂. May 9, Dumbauch (Feridan District).
♂. May 12, Barbarud.
"A few seen wherever there were trees."—R. B. W.

Tinnunculus alaudarius (Gm.). [B. 105; W. 561.]
♂. March 23, Shuteit River.

Accipiter nisus (L.). [B. 109.]
♂. April 6, mountains north of Ram Hormuz, alt. 2800 ft.
"The only specimen seen."—R. B. W.

Circus æruginosus L. [B. 110; W. 562.]
♂. March 17, Shus, near Dizful.
"A few seen in the low country."—R. B. W.

Milvus migrans (Bodd.). [B. 114; W. 561.]
♂. June 1, Sehna.
♀. June 4, Sakiz.

Asio accipitrinus (Pall.). [*W. 560.]
Otus brachyotus (Gm.); [B. 116].
♂. March 16, Shus.
"A few seen in the young corn."—R. B. W.

Neither Dr. Blanford nor I procured specimens of this bird. In the present example the dark markings of the feathers are very distinct, and the whole plumage is less suffused with buff-colour than is usual in European specimens. A skin from Fao in the British Museum is also distinctly marked, but is slightly more buff in general tone of coloration.

Athene noctua bactriana Hutton. [W. 559.]
Athene glaux (Sav.); [B. 117].
♂. March 18, Shus.
♂. April 18, Dopulan, alt. 7000 ft.
♀. June 10, Lake Urmia.
♂. June 21, Lake Van, alt. 5500 ft.

Cuculus canorus L. [B. 119; *W. 556.]
♀. April 6, mountains north of Ram Hormuz.
"Not uncommon among the oak-trees."—R. B. W.

This is a chestnut-coloured specimen which appears to have freshly moulted. It has no white nape-spot, and is like an example which I obtained on April 11, 1898, in Andalucia. My specimen was in full moult and the new feathers were even of a brighter red than the old.

Coccystes glandarius (L.). [B. 120; W. 556.]
♀. March 6, Bund-i-Kir (Karun River).
"Only one seen."—R. B. W.

Halcyon smyrnensis (L.). [B. 121; *W. 559.]
♀. April 2, Ram Hormuz.
♂. April 8, Mal Amir.

Ceryle rudis (L.). [B. 122; W. 558.]
♂. March 19, Shus (Kerkhah River).

This specimen has the base of the tail unspotted, but the throat, unlike that of *C. r. varia*, is also unspotted, while the flanks are distinctly streaked. The wing measures 5·8 inches, which is considerably larger than that of *C. r. varia*.

Merops apiaster L. [B. 122; W. 557.]
♂ ♀. May 16, Burujird.

Merops persicus Pall. [W. 557.]
Merops ægyptius [B. 123].
♂ ♂ ♂. March 23, Shuteit River.

Merops viridis L. [B. 124; W. 558.]
♀. Feb. 14, near Bushire.

Coracias garrulus L. [B. 125; W. 559.]
♂. April 6, mountains north of Ram Hormuz.
♂. June 12, Lake Urmia.

Cypselus apus pekinensis (Swinh.). [W. 558.]
Cypselus apus (Linn.); [B. 129].
♀. March 21, Shuster.

Upupa epops L. [B. 130; W. 557.]
♂. May 20, Sehna, alt. 5000 ft.

DENDROCOPUS MAJOR SYRIACUS (H. & E.).
Dendrocopus syriacus [W. 554].
Picus syriacus H. & E.; [B. 130].
♂ ♀. April 15, mountains near Mal Amir, alt. 4000 ft.

DENDROCOPUS MEDIUS SANCTI-JOHANNIS (Blanf.). [W. 554.]
Picus sancti-johannis Blanf., Ibis, 1873, p. 226; [B. 133].
♂. April 15, mountains near Mal Amir, alt. 7000 ft.

"A few seen on the higher wooded hills, but they were scarce, and I failed to obtain more than one specimen. We only passed through the country frequented by these Woodpeckers for a few hours one morning, and I never heard of or saw any others."—R. B. W.

A little further south than where Mr. Woosnam obtained this specimen I found the bird common, but I noted that, unlike *D. syriacus*, it was confined to the oak-woods above an altitude of 4000 ft.

GECINUS VIRIDIS INNOMINATUS Sar. et Loud., Ornith. Monatsb. vol. xiii. p. 49.
Gecinus viridis (L.); [B. 135; W. 555].
♂. April 15, mountains near Mal Amir, alt. 7000 ft.

"Only one seen."—R. B. W.

Wing 160 mm.; bill from nostril to tip 32 mm.; tarsus 25 mm.

The Green Woodpecker seems to be a rare bird in Southern Persia. Dr. Blanford obtained only a worn female specimen, and I saw very few and managed to procure only an immature bird. Both Dr. Blanford and I noted that these birds were much greyer than the typical *G. viridis*, and an examination of Mr. Woosnam's specimen confirms this view, which has been emphasized by M. Sarudny and Baron Loudon in their name for the Persian race, presumably after an examination of specimens procured by the former. The upper parts of this specimen are much paler than in typical *G. viridis* and more bluish, not so golden green. The ear-coverts, sides of the neck, throat, breast, and flanks are greyish white with scarcely a tinge of yellow, while the belly is much paler and less buff than in *G. viridis*.

Lanius minor Gm. [B. 137; W. 534.]

♀. April 26, Ispahan.
♀. May 8, Tiran.

"Not uncommon in the gardens from Ispahan to Kermanshah. Scarcer towards Lake Urmia, and not seen after leaving the lake."—R. B. W.

Lanius collurio L. [*B. 137; W. 534.]

♂. May 12, Barbarud, alt. 7000 ft.
♀. May 14, Derbend, alt. 6000 ft.
♂. June 16, Diza, alt. 6500 ft.
♀ ♀. June 27, Lake Van, alt. 5000 ft.
♂ [juv.]. July 26, Sumela, alt. 500 ft.

"First seen in the Barbarud District, and from there to the coast of the Black Sea at Trebizond they were often observed."—R. B. W.

From this it seems that the Red-backed Shrike is common in North-western Persia. Dr. Blanford did not meet with it, and I found it rare; but at Fao, at the head of the Persian Gulf, Mr. W. D. Cumming found it common in spring and autumn ('Ibis,' 1886, p. 485).

Lanius nubicus Licht. [W. 534.]

[♂.] April 2, Ram Hormuz.
♀. April 6, mountains north of Ram Hormuz.
♂. April 10, Mal Amir.

Lanius senator paradoxus A. E. Brehm.
Lanius auriculatus Müll.; [B. 138].
Lanius rufus Gm.; [W. 534].

? sex. March 8, } Shuteit River.
♂. March 25, }
♀. April 2, Ram Hormuz.
♀. April 14, Deh-i-Diz.

All these specimens have white bases to the middle tail-feathers.

MUSCICAPA GRISOLA L. [B. 143; W. 552.]

♂. May 8, Tiran.

"A few in the gardens from Ispahan to Trebizond."—R. B. W.

MUSCICAPA ATRICAPILLA L. [B. 143; W. 552.]

Sharpe, Ibis, 1886, p. 494; 1891, p. 110.

♀. April 3, Ram Hormuz.

♀. April 8, Mal Amir.

"A few seen in the gardens."—R. B. W.

Dr. Blanford did not meet with this bird in Southern Persia, and I observed only two specimens, but one from Bushire and two from Fao are recorded by Dr. Sharpe.

PRATINCOLA RUBICOLA MAURA (Pall.). [W. 547.]

Pratincola rubicola (L.); [B. 145].

♂. March 26, Shuteit River.

♂. May 9, } Feridan District.
♀. May 11, }

? sex [juv.]. June 15, Lake Urmia.

♀ [juv.]. July 19, Baibort.

PRATINCOLA HEMPRICHI (Ehr.). [*B. 145.]

♂. March 16, Shus.

This specimen has the basal half of the middle pair of tail-feathers white, while the others are white tipped with black (10–15 mm. in length).

The distribution of this race or species, whichever it be, requires to be very carefully worked out. This particular bird may have been a migrant.

SAXICOLA ŒNANTHE (L.). [B. 146; W. 546.]

Twelve specimens were obtained, dated from March 21 at Shuster to June 28 at Lake Van.

SAXICOLA ISABELLINA Cretzschm. [B. 147; W. 546.]

Seven specimens of this Wheatear were obtained, dated from March 21 at Shuster to June 27 (a young bird) at Lake Van.

Saxicola deserti Temm. [B. 148; W. 546.]
♂. March 26, Shuteit River.
♂. March 28, Ahwaz.
"A few seen."—R. B. W.

The Desert-Wheatear is confined to the low country near the Gulf.

Saxicola melanoleuca (Güld.). [B. 150; W. 545.]
♂. March 26, Shuteit River.
♂. April 10, Mal Amir.
♂ ♀. April 18, Dopulan.
♂. April 21, Ardal.
♂. June 8, Suj Bulak.
"Not uncommon among the hills."—R. B. W.

Saxicola finschi Heugl.
Saxicola erythræa H. & E.; B. 150.
♂ ♀ ♀ [juv.]. June 8, Suj Bulak, alt. 4500 ft.
♀. June 27, Lake Van.

The young bird is like the adult female on the upper side, but is more evenly coloured with sandy grey. There is no black on the throat, which, like the breast, is pale buff-coloured.

The specimen dated June 27 was shot from a nest which Mr. Woosnam describes as follows:—"The nest was placed in a hole about two feet deep, in the sandy bank of a dry water-course. It was composed of grass and roots, and lined with fine roots. It contained five white eggs."

The eggs measure 21½ × 17 mm.

Saxicola albicollis (Vieill.). [W. 545.]
Saxicola stapazina (L.), nec auct.; [B. 150].
♂. April 18, Dopulan.

Saxicola gaddi Sar. et Loud. (Orn. Jahrb. xv. p. 219), from Arabistan, Luristan, and Masanderan, is described as like *S. amphileuca* H. & E., but with the black of the ear-coverts joining that of the shoulder and wings unbrokenly. I have never seen such a specimen, and can recognise only two forms of the Black-eared Wheatear, viz.: *S. albicollis*, the eastern and typical form, and *S. a. caterinæ*, the western form.

Saxicola chrysopygia (De Fil.). [B. 151; W. 544.]
Sex doubtful. April 21, near Ardal, alt. 10,000 ft.
"Only one pair seen, on a rocky hill-side."—R. B. W.

Saxicola morio H. & E. [B. 152; W. 545.]
♀. April 8, Mal Amir.
♀ [? ♂]. June 16, Diza.
♂. June 25, Lake Van.

Monticola cyanus L. [B. 155; W. 550.]
♂. March 5, Bund-i-Kir.
♂. April 18, Dopulan.
♂ ♀. May 21, Bisitun.

Monticola saxatilis (L.). [B. 156; *W. 550.]
♀. April 18, Dopulan.
"Only one seen up to Lake Van."—R. B. W.
♂ ♂ ♀. June 20, Bashkala (Lake Van).

Turdus musicus L. [B. 156; W. 551.]
♂. Feb. 14, near Bushire.
♀. March 4, Bund-i-Kir.
♀. March 16, Shus.

"Very plentiful in the bush on the Diz and Kerkhah Rivers. Not breeding yet (March 16)."—R. B. W.

Like other specimens from Southern Persia, these are pale, and the buff, which is so conspicuous on the breast and flanks of English specimens, is wanting. In this they resemble Siberian and, I think, other continental examples of the Song-Thrush. A careful examination of a large series would, perhaps, shew that the Song-Thrush which breeds in England should be separated, although migrants with grey flanks pass through the country.

There is no record of the Song-Thrush breeding in Southern Persia.

Turdus merula syriacus H. & E. [W. 551.]
Turdus merula L.; [B. 157].
♂. March 18, Shus.
♂. April 16, mountains near Mal Amir.
♂ [juv.]. July 23, Sumela.

The adult males are brownish black, have the bills orange, and wings measuring 129 and 131 mm. The young bird has the bill brown, and is blacker and not so rufous as in typical *T. merula*.

ERITHACUS RUBECULA HYRCANUS.

Erithacus hyrcanus [B. 160].

♀. March 14, Shus.

"Not uncommon in the bush on the Diz River. A very shy bird."—R. B. W.

Dr. Blanford found this bird only on the shores of the Caspian, and thought that it was confined to Northern Persia. It is, however, known to migrate from the north, and has been recorded at Fao in October and November by Dr. Sharpe ('Ibis,' 1891, p. 189).

ERITHACUS GUTTURALIS (Guér.). [W. 548.]

Cossypha (*Irania*) *gutturalis* Guér.; [B. 161].

Ten specimens dated from April 2 at Ram Hormuz to June 26 (young bird) at Lake Van.

"Just beginning to breed at Ardal, April 21."—R. B. W.

RUTICILLA PHŒNICURUS (L.). [B. 163; W. 547.]

♂. May 8, Tiran.

♀. May 9, Feridan.

"Not breeding yet."—R. B. W.

In the 'Ibis' for 1903, p. 547, I pointed out that some specimens from Persia had indications of white edgings to the secondaries, and therefore seemed intermediate between this species and *R. mesoleuca*; but I now think that this colouring is due to abrasion, and is sometimes present in European specimens when in much-worn plumage.

M. Sarudny (Ornith. Jahrb. 1904, p. 213) has described from Luristan, Arabistan, and Masanderan a Redstart under the name of *Ruticilla semenowi* as differing from *R. phœnicurus* (L.) in the greater development of the black colour of the top of the head and back. As the typical *R. phœnicurus* has no black on these parts this description seems incomprehensible.

RUTICILLA MESOLEUCA (H. & E.).
♂. March 26, Shuteit River.
♂. March 30, Ahwaz.
♀. April 18, Dopulan.

RUTICILLA TITYS (Scop.). [B. 166.]
♀. Feb. 26, Ahwaz.
♂. March 4, Bund-i-Kir.

ERITHACUS CYANECULA (Wolf). [W. 549.]
? *Cyanecula wolfi* Brehm ; [B. 169].
♂ [juv.]. July 16, Arab Keni, alt. 7000 ft.
♂ [juv.]. July 19, Baibort, alt. 5000 ft.

These two specimens are in juvenile plumage and the first winter feathers are just sprouting; but, as the young bird does not attain full plumage until the spring moult, it is only possible to say that these examples are Bluethroats either of the red-spotted or white-spotted form. As they appear to have been bred in the neighbourhood (*i. e.*, between Erzeroum and the Black Sea) it seems advisable to consider them as of the white-spotted form, which is known, I believe, to nest in Armenia.

PHILOMELA LUSCINIA GOLZI (Cab.). [W. 548.]
Daulias hafizi Severtz.; [B. 169].
♂ ♂. April 3, Ram Hormuz.

"Very plentiful in the gardens. Just beginning to breed." —R. B. W.

PHILOMELA LUSCINIA LUSCINIA (L.), nec auct.
♀. May 14, Burujird, alt. 6500 ft.

This is a typical specimen of the Sprosser (*P. philomela* auct.), and must have been on migration.

As recorded by Dr. Sharpe ('Ibis,' 1886, p. 482), Mr. Cumming considered Nightingales to be winter-visitors to the Persian Gulf, but I suppose that he did not distinguish the different forms. However, his specimens from Fao are Sprossers, but the labels bear no dates.

SYLVIA ORPHEA JERDONI Blyth. [W. 541.]
Sylvia jerdoni Blyth; [B. 172].
♂. April 14, Deh-i-Diz.
"A few seen in the oak-woods."—R. B. W.

SYLVIA HORTENSIS Bechst.
**Sylvia salicaria* (L.); [B. 174].
♀. May 12, Barbarud, alt. 7000 ft.

Former records of the Garden-Warbler in Persia are doubtful, and, in any case, the bird has not been previously recorded so far to the south in Persia proper, although it has been obtained at Fao (Sharpe, 'Ibis,' 1886, p. 480). The specimen is rather large, the wing measuring 80 mm. and the bill 8 mm. from the nostril to the tip. It is also rather pale-coloured on the back.

SYLVIA ATRICAPILLA (L.). [*B. 174; W. 540.]
♀. April 18, Dopulan, alt. 6000 ft.
♀. May 12, Barbarud.

SYLVIA CINEREA Bechst. [W. 541.]
Sylvia rufa (Bodd.); [B. 174].
♂. April 21, near Ardal.
♀. May 12, Barbarud.

SYLVIA CURRUCA (L.). [B. 175; W. 540.]
? sex. April 8, } Mal Amir.
♂. April 9, }

SYLVIA MYSTACEA Ménétr. [W. 539.]
Sylvia rubescens Blanf.; [B. 177].
Sylvia semenowi Sar., Orn. Jahrb. xv. p. 220.
♀. Feb. 28, Ahwaz.
♂ ♀. March 2, Bund-i-Kir.
♂. May 29, Takht-i-Suleiman.
♀. June 15, near Lake Urmia.

These specimens and those which I obtained agree well with typical examples of *S. mystacea*. M. Sarudny's *S. semenowi* from the same country is, I consider, a synonym, while he has not, I think, recognised the difference between

S. mystacea and *S. momus* (Ehr.), with the latter of which he compares his bird without any mention of *S. mystacea* of Ménétries from the Caucasus.

Blanford having already made a synonym for this bird based on Persian examples, it is curious that M. Sarudny should do likewise.

SYLVIA NANA (H. & E.). [B. 178; W. 540.]
♂ ♂. March 26, Shuteit River.

PHYLLOSCOPUS TROCHILUS (L.). [B. 180; W. 539.]
♂. April 18, Dopulan.
♂. May 9, Feridan District. "Not breeding."—R. B. W.
♀. May 18, Burujird.

PHYLLOSCOPUS RUFUS (Bechst.). [W. 539.]
Phylloscopus collybita (Vieill.); [B. 181].
♀. Feb. 14, Khisht River.
♂. Feb. 27, Ahwaz.
♂. March 11, Diz River.
♂. March 26, Shuteit River.

These appear to be typical examples of *P. rufus*, and, judging from Mr. Woosnam's notes, they were not breeding.

PHYLLOSCOPUS NITIDUS Blyth.
♂. July 24, Sumela, alt. 3000 ft.

The bill of this specimen is rather short (6 mm. from nostril to tip), but otherwise the bird agrees with April and May skins from Cashmere and Afghanistan. The species is known to breed in the Caucasus (*cf.* Dresser, Man. Pal. Birds, p. 101).

PHYLLOSCOPUS NEGLECTUS Hume. [B. 182; W. 537.]
♂. April 21, near Ardal, alt. 9500 ft.
"Only one seen."—R. B. W.

From Mr. Woosnam's notes it appears that this bird was frequenting low thick bushes on the side of a hill, *i. e.* a similar situation to that in which I found a pair nesting.

HYPOLAIS PALLIDA (H. & E.). [B. 187; W. 541.]

♂. April 30, Ispahan.
♂. May 12, Barbarud.
♀. May 26, Kermanshah.

ACROCEPHALUS LACUSTRIS (Naum.).

*? *Acrocephalus arundinaceus* (L.); [B. 195].

♂. Feb. 28, Ahwaz.

"Only one seen in a patch of beans."—R. B. W.

The occurrence of this bird in Persia has hitherto been uncertain, but there is a specimen from Fao in the British Museum (see Sharpe, 'Ibis,' 1886, p. 481). The two individuals may have been migrants, or the species may breed in Mesopotamia and would then be likely to occur at Fao and at Ahwaz, which may be said to be geographically in that region.

ACROCEPHALUS PALUSTRIS (Bechst.). [B. 197; W. 543.]

♂. May 12, Barbarud.
♀. May 14, Burujird.

CETTIA CETTI (Marm.).

Bradypterus cettii (Marm.); [B. 200].

Cettia sericea (Temm.); [W. 536].

♂. April 16, near Mal Amir.
♂. May 26, Kermanshah.

Mr. Woosnam remarks that "the leg-muscles of this species are enormously developed and the skin adheres to the body with remarkable tenacity."

ACCENTOR COLLARIS (Scop.). [*B. 202.]

♀ [juv.]. July 21, near Baibort, alt. 7000 ft.

This specimen agrees well with the young of typical *A. collaris*.

ACCENTOR OCULARIS Radde, Ornis Caucasica, p. 244, Taf. xiv.

Accentor jerdoni (nec Brooks); [W. 544].

♀ ♀. April 21, near Ardal, alt. 9500 ft.
♂ [juv.]. July 8, near Erzerum, alt. 8000 ft.
"Sex doubtful" [juv.]. July 21, near Baibort, alt. 7000 ft.

"Very few seen."—R. B. W.

Some little time ago Dr. Bianchi pointed out to me that the bird which I had identified somewhat doubtfully ('Ibis,' 1903, p. 544) as a worn specimen of *A. jerdoni* was probably an example of this species. On a comparison with specimens in worn and in fresh plumage which Dr. Bianchi had procured from the same locality, it became evident that this was so. *A. jerdoni* is closely allied to *A. strophiatus*, but somewhat paler; while *A. ocularis* is most nearly allied to the latter, from which it differs in the eye-streak being white throughout, in the head being more uniform, and in the buff-coloured pectoral band being more confluent and less clearly defined.

The young birds obtained by Mr. Woosnam are like the old, but have the eye-streak less clearly defined and the breast heavily streaked with dark brown, while there is very little buff-colour on the breast.

ARGYA HUTTONI (Blyth). [W. 535.]
Crateropus (*Chatorhea*) *huttoni* (Blyth); [B. 203].
♀. March 4, Bund-i-Kir, alt. 250 ft.

BURNESIA GRACILIS LEPIDA (Blyth). [W. 536.]
Drymœca gracilis (Licht.); [B. 206].
? sex. February 14, Khisht (coast plain).
♂. April 3, Ram Hormuz, alt. 600 ft.

AËDON FAMILIARIS (Ménétr.). [B. 210; W. 543.]
♂ ♂. April 14, Deh-i-Diz.
♂. May 27, Kermanshah.
♀. June 8, Suj Bulak, alt. 4500 ft. "Laying now."—R. B. W.

CINCLUS CINCLUS PERSICUS Witherby, Bull. B. O. C. xvi. p. 71.
Cinclus aquaticus albicollis (nec Vieill.); [W. 549].
♂ ♂. April 16, mountains near Mal Amir, alt. 6000 ft.

"Not seen in the Karun District, uncommon in the Bachtyari Mountains, plentiful at certain points in the open undulating country between Ispahan and Kermanshah."—R. B. W.

As already described in the 'Bulletin of the B. O. C.,' this bird is most like *C. c. rufiventris* from Palestine, but is larger and redder on the breast, flanks, and belly. It is curious that these two forms, so much alike, should be found in regions of about the same latitude, but separated from each other by a desert, and that they should be replaced in the north by a darker form. The fact inclines me to suggest that they were evolved independently of one another from the northern form.

CINCLUS CINCLUS CAUCASICUS Mad.

Cinclus aquaticus Bechst., var. *cashmiriensis* Gould; [B. 213].

Cinclus rufiventris (nec H. & E.); Buturlin, Ibis, 1906, p. 414.

♀. Diza, June 16, alt. 6500 ft.

♀. July 8, near Erzerum, alt. 7000 ft.

♂ [juv.]. July 25, Sumela, alt. 1500 ft.

This form of the Dipper is a connecting-link between the red-bellied *C. c. rufiventris* and the uniformly brownish-black breasted *C. c. cashmiriensis*. Specimens from Western Asia Minor tend to become less dark on the belly than those from the Caucasus, but they are never reddish-brown as are *C. c. rufiventris* and *C. c. persicus*.

COTILE RIPARIA (L.). [B. 216; W. 553.]

♂ ♂. May 27, Kermanshah.

"Seen on most of the more sluggish streams where there were banks suitable for nesting."—R. B. W.

COTILE RUPESTRIS (Scop.). [B. 216; W. 553.]

♂ ♀. June 22, Lake Van.

"Seen here and there throughout the journey, but never numerously."—R. B. W.

PYCNONOTUS LEUCOTIS (Gould). [B. 218; W. 552.]

♂. April 3, Ram Hormuz.

ORIOLUS GALBULA L. [B. 219; *W. 519.]

♀. June 27, Lake Van.

♂. July 10, Tortum River.

SITTA EUROPÆA PERSICA Witherby. [W. 531.]

♂ ♀. April 15, mountains near Mal Amir, alt. 7000 ft.

"Plentiful at altitudes of 6000–7000 ft. in this district." —R. B. W.

These examples agree well with the type specimen of this pale race, which appears to be confined to the oak-woods of the Zagros range.

SITTA NEUMAYERI NEUMAYERI Michah.

♂. June 16, Diza.

♂. July 12, Tortum River.

These specimens are, I consider, typical *S. neumayeri*, but the district round Erzerum seems to form the meeting-place of this bird and its larger and paler Eastern representative, *S. n. tephronota*, since certain examples from this neighbourhood are somewhat intermediate between the two forms.

SITTA NEUMAYERI TSCHITSCHERINI Sarudny.

Sitta tschitscherini Sarudny, Orn. Jahrb. xv. p. 218.

Sitta neumayeri syriaca Ehr.; [W. 532].

Sitta rupicola Blanf., part.; [B. 225].

Sitta syriaca Ehr.; [B. 223].

♂. April 10, Mal Amir.

♂. April 18, Dopulan.

♀. May 21, Bisitun.

The Rock-Nuthatches of S.W. Persia are very large and pale-coloured. On a further study of these birds (*cf.* 'Ibis,' 1903, p. 532) I find that the S.W. Persian race can be separated from *S. n. tephronota* on account of its larger size, while the Palestine bird is, judging from the small amount of material available, referable to typical *S. neumayeri*, from which *S. n. tephronota* may be distinguished by its paler coloration. M. Sarudny's type was from Ispahan, and although I have not seen specimens from precisely that neighbourhood, there can be no doubt that these birds are the same. The only difficulty in so deciding is on account of the measurements given by M. Sarudny. But it is evident, as has been pointed out by Dr. Hartert (Vög. pal. F. p. 339), that M. Sarudny, like Dr. Blanford when describing *S. rupicola*, took a young bird for an old one. I obtained several young birds with their parents, and although these young birds appear to be fully developed yet their measurements are very small. The wing-feathers are fully grown, but measure only 72 mm. as against 86–92 mm. in the adult, while the bill and legs are correspondingly small. Unlike most Passeres, therefore, it is evident that the Rock-Nuthatch's first quill-feathers are remarkably small and are moulted with the rest of its juvenile plumage.

Sitta syriaca obscura Sar. & Loud. (Orn. Monatsb. 1905, p. 76) seems referable to *Sitta neumayeri tephronota* Sharpe (*cf.* Hartert, Vög. pal. F. p. 339), while the description of yet another race from the Caucasus region by Mr. Buturlin ('Ibis,' 1906, p. 417) under the name of *S. syriaca parva* adds further to the confusion. This last will prove, I think, to be another synonym of *S. n. tephronota.* The rufous edgings to the tail-feathers vary considerably in different specimens. Mr. Buturlin does not exactly compare his new form with either *S. n. neumayeri* or *S. n. tephronota,* but with Blanford's description of *S. rupicola* and M. Sarudny's and Blanford's descriptions of *S. syriaca,* all of which are mixed!

TROGLODYTES PARVULUS HYRCANUS Sar. et Loud., Orn. Monatsb. 1905, p. 106.

Troglodytes parvulus Koch ; [B. 222].

♂. July 25, Sumela, alt. 1500 ft.

"A few seen."—R. B. W.

This specimen differs distinctly from typical *T. parvulus* in the pale, much less reddish colouring of its upper side and in the distinctness of the spotting on the belly. It is much like *T. pallida* Hume, but differs in the dark bars on the feathers of the belly being black, not brown, and more distinct. The shoulder-feathers are also tipped with white, which does not appear to be the case in *T. p. pallidus.* I have referred this specimen to *T. p. hyrcanus,* but it does not altogether agree with the description given by Baron Loudon and M. Sarudny. It is, however, in such worn plumage that an exact comparison is difficult. The wing measures 50 mm.

PARUS MAJOR MAJOR L.

♂. June 13, Lake Urmia.

♂. July 24, Sumela.

These two specimens agree well with typical examples from Europe.

PARUS MAJOR BLANFORDI Prazak, Orn. Jahrb. v. p. 240.

Parus major L.; [B. 227; W. 530].

Parus major zagrossiensis Sar. & Loudon, Orn. Monatsb. 1905, p. 107.

♂. March 11, Diz.

♀. March 16, Shus.

♂ ♀. April 16, mountains near Mal Amir.

In the 'Ibis,' 1903, p. 530, I stated that I considered it inadvisable to separate the S.W. Persian Great Tit, but on a fresh examination of a larger series I find that the paleness of the colouring of the breast is so constant and marked as compared with typical examples from Europe that separation is needful. I follow Dr. Hartert in calling the bird *P. m. blanfordi*, but Herr Prazak's type was from Teheran, and I have not seen specimens from that locality.

PARUS ATER L.

? *Periparus ater* L., var. *derjugini* Sar. & Loud., Orn. Monatsb. 1903, p. 129.

♀ [juv.]. July 22, Sumela.

"Shot on the highest slopes of the forests of fir-trees."—R. B. W.

This bird is in juvenile plumage, and I have not attempted to give it a subspecific denomination.

PARUS LUGUBRIS DUBIUS Hellm. [W. 529.]

Parus lugubris ? Natt.; [B. 229].

♂ ♀. April 14, Deh-i-Diz, alt. 5500 ft.

♂. April 16, mountains near Mal Amir.

"A few seen in the oak-woods only."—R. B. W.

This race seems to be confined to the oak-woods of S.W. Persia.

PARUS CÆRULEUS PERSICUS Blanf. [B. 230; W. 530.]

♂ ♀. April 10 and 13, Mal Amir, alt. 4300 ft.

"Seen only in the oak-woods."—R. B. W.

ACREDULA TEPHRONOTA Günther. [B. 231; W. 529.]

Acredula tephronota passekii Sar., Orn. Monatsb. xii. p. 164.

♂. April 16, mountains near Mal Amir.

M. Sarudny has separated the Long-tailed Tit of the Persian oak-woods on account of its paler coloration. I pointed out in the 'Ibis,' 1903, p. 529, that it was slightly paler, but the difference is so inconspicuous that it might disappear in freshly plumaged birds, and I think it inadvisable to separate the bird on the basis of so slight a difference in shade of colour.

ANTHOSCOPUS PENDULINUS (L.). [*B. 232.]

♂. June 14, near Lake Urmia.

This bird was found by De Filippi in N.W. Persia, but was not seen by Dr. Blanford.

REGULUS REGULUS.

♂ [juv.]. July 23, Sumela.

The specimen is in juvenile plumage with no crest.

MOTACILLA ALBA L. [B. 232; W. 528.]

? *Motacilla alba dukhunensis* Sykes.

? sex. Feb. 10, Bushire.

♂. July 24, Sumela.

I can see no difference between these birds and my own from S.W. Persia and others from Europe.

MOTACILLA PERSICA.

Motacilla personata Gould, var. *persica* [B. 232].

♂. Feb. 27, Ahwaz.

♀. April 24, Bagh-i-Badaran (near Ispahan).

Even when taking migrating birds into consideration, the breeding-range of this form and that of the White Wagtail seem to overlap, and on this account it is difficult to regard *M. persica* as a geographical race. Dr. Blanford obtained specimens of both birds at Shiraz in June and at Kerman in May, and one can hardly look upon these as migrants, although the examples of *M. alba* obtained by myself in S.W. Persia in March and April may have been so, as well as the specimen obtained at Bushire by Mr. Woosnam. Mr. Cumming says of "*Motacilla alba*" at Fao that it "begins to arrive in October and remains till end of April" ('Ibis,' 1886, p. 486).

MOTACILLA BOARULA L. [W. 527.]
Motacilla sulphurea Bechst.; [B. 233].
♀. April 5, near Ram Hormuz.
♂. July 12, Tortum River.
♀. July 23, } Sumela.
♂. July 24, }

These all belong, I think, to the long-tailed European form of the Grey Wagtail.

MOTACILLA FELDEGGI Michah. [W. 527.]
Budytes melanocephalus Licht.; [B. 235].

Six specimens from Shalamzar, April 21, to Bashkala, June 16. Breeding at Divandere, June 2.

ANTHUS TRIVIALIS (L.). [B. 235; W. 528.]
♀. July 16, Arab Keni, alt. 6000 ft.
"Young in nest."—R. B. W.

ANTHUS SPINOLETTA SPINOLETTA (L.).
♂. July 22, Sumela, alt. 7000 ft.
"Breeding. Fledged young and young in nest."—R. B. W

The specimen agrees well with typical examples of this form.

ANTHUS SPINOLETTA COUTELLII Sav., in Descr. de l'Égypte. xxxiii. p. 360.
? *Anthus spinoletta* (L.); [B. 236].
♂. April 2, Ram Hormuz.

This specimen has nearly finished its moult from winter to summer plumage. It agrees with specimens in similar plumage from Palestine and Egypt. As compared with typical *A. spinoletta* it is much paler and browner, and less blackish on the back, while the rump is more golden brown.

As compared with *A. s. blakistoni* it is darker on the back, and browner and not so olive-coloured on the rump.

ANTHUS SPINOLETTA BLAKISTONI Swinh.

♀. Feb. 14, Khisht River.

"In small parties."—R. B. W.

This specimen is in winter plumage, and was no doubt migrating. It agrees well with specimens from Sind.

ANTHUS CAMPESTRIS (L.). [B. 237; W. 528.]

Eight specimens, dated from March 21 at Shuster to June 29 near Lake Van. They are of a very slightly greyer tone of coloration on the upper side than examples from Europe and Africa.

[The birds which I referred to *Anthus sordidus* Rüpp., in the 'Ibis,' 1903, p. 528, are of the pale form lately described by Dr. Hartert under the name of *Anthus leucophrys captus* (Vög. pal. Fauna, p. 269).]

ALAUDA ARVENSIS CINEREA.

Alauda cinerea Ehmcke, J. f. O. 1903, p. 149.

Alauda arvensis L.; [B. 239].

Alauda arvensis cantarella Bp.; [W. 526].

♂ ♀ ♀. Feb. 26, Ahwaz.

♂. May 12, Barbarud.

Dr. Hartert has shown that *A. a. cantarella* of S.E. Europe is distinct from *A. a. cinerea*, the Eastern representative of the Skylark.

ALAUDA ARBOREA L. [*B. 240; W. 526.]

? *Lullula arborea pallida* Sar., Orn. Monatsb. 1902, p. 54.

♂ ♀. April 20, Ardal.

♂. June 16, Diza.

These specimens, like those which I obtained, agree well with European birds.

GALERIDA CRISTATA MAGNA Hume. [W. 525.]

Galerida cristata (L.); [B. 240].

♀. Feb. 10, Bushire.

♂. Feb. 27, Ahwaz.

♂. April 23, Shalamzar.

ALÆMON ALAUDIPES PALLIDA (Blyth).
Certhilauda desertorum (Stanley); [B. 240].
*? *Certhilauda alaudipes* (Desf.); [W. 525].
♂. Feb. 14, coast-plain N.W. of Bushire.

This form is like *A. a. desertorum* in colouring, but is larger. In Western Persia it is found only on the coast-plain. The specimen measures 136 mm. in the wing.

OTOCORYS ALPESTRIS PENICILLATA (Gould).
Otocorys penicillata (Gould); [B. 240; W. 527].
♂ ♀. April 21, near Ardal, alt. 9500 ft.
♂ ♀. May 10, Feridan District, alt. 8000 ft.
♂. June 29, near Lake Van, alt. 5500 ft.

"A few were seen on the highest ground we reached in the Bachtyari country, and once again in the Feridan District. They were plentiful on the high ground between Lake Van and Erzerum and onwards to the Tortum River. The young were going about in flocks of from six to twenty."—R. B. W.

CALANDRELLA MINOR MINOR (Cab.).
♀. April 2, Ram Hormuz.

I can see no difference between this specimen and typical examples of the species from N. Africa. Two examples in the British Museum from Fao are also of this form, and I think it probable that the typical *C. minor* is found all over S.W. Persia. The type-specimen of *C. minor persica* Sharpe is dated from Niriz, which is to the east of the mountains of West Persia, and it seems probable that this race occurs in the plains of Eastern Persia. The bird described as *C. m. seistanica* by M. Sarudny and Baron Loudon (Orn. Jahrb. xv. p. 222) will, I think, judging from the description, prove to be *C. m. persica*.

CALANDRELLA MINOR PISPOLETTA (Pall.).
♂. June 12, Lake Urmia.

CALANDRELLA BRACHYDACTYLA (Leisler). [W. 525; B. 242.]
♂ ♀. April 23, Shalamzar.
♂. May 10. Feridan District.

These specimens agree well with those which I formerly obtained, and with typical examples of this species.

MELANOCORYPHA CALANDRA PSAMMOCHROA Hartert.

Melanocorypha calandra (L.); [B. 243].

Melanocorypha calandra raddei Sar. & Loud., Orn. Jahrb. xv. p. 221 (Terra Bachtiara, S.W. Persia).

♂. Feb. 26, Ahwaz, alt. 220 ft.

♂. May 9, Feridan District, alt. 8000 ft.

"Plentiful in the Feridan District and also from Ispahan nearly to Lake Urmia, but at lower elevations than no. 208 (i. e., *M. bimaculata*); it seemed to prefer the cultivated and low-lying ground to the high undulating grassy hills; but the two species were seen together. It (*i. e.*, the present species) was breeding in the Feridan District at about 7000 ft. on May 10."—R. B. W.

Compared with some skins of *M. c. psammochroa*, collected by M. Sarudny and kindly lent to me by Dr. Hartert, these specimens have a slightly greyer and less sandy appearance. The difference, however, is only a matter of a very fine shade of colour, and in my opinion does not make separation necessary. The authors of *M. c. raddei* describe it as less grey and more sandy than *M. c. psammochroa*, which is exactly the opposite to what one would expect and to what I find to be the case.

MELANOCORYPHA BIMACULATA (Ménétr.). [B. 244; W. 526.]

♀. March 21, Shuster, alt. 500 ft.

♂ ♂. May 9, Feridan District, alt. 8000 ft.

♂. May 11, Barbarud District, alt. 8000 ft.

♀. June 8, Suj Bulak, alt. 4500 ft.

"Plentiful and found from Ispahan nearly to Trebizond, both in the cultivated corn-land and on the open grassy undulating mountains. It was breeding in the Feridan District at 8000 ft. on May 9."—R. B. W.

I have quoted in full Mr. Woosnam's remarks on the distribution of this and the previous species, because they form an interesting confirmation of Blanford's opinion that, although these two Larks inhabit the same area, the one prefers higher altitudes than the other.

AMMOMANES DESERTI (Licht.). [B. 245; W. 524.]

♀. April 5, N.W. of Ram Hormuz.

"A few seen here amongst the barren hills, but not afterwards."—R. B. W.

AMMOMANES DESERTI PHŒNICUROIDES (Blyth).

♀. Jan. 31, Muskat.

FRINGILLA CŒLEBS L. [B. 247.]

♀. March 12, Dizful.

"A few seen here."—R. B. W.

♀. July 23,
♂. July 24, } Sumela.
♂ ♀. July 25,

"Very plentiful here."—R. B. W.

LIGURINUS CHLORIS (L.). [*B. 247.]

♂. July 26, Sumela.

This specimen is in worn plumage, and agrees well with examples in similar plumage from England, except that the wing is rather short, measuring only 85 mm. The bird cannot be referred to *L. c. chlorotica* (Bp.).

MONTIFRINGILLA ALPICOLA (Pall.). [B. 248; W. 524.]

Montifringilla alpicola gaddi Sar. & Loud., Orn. Jahrb. 1904, p. 216.

♂ ♂. April 21, near Ardal, alt. 10,000 ft.

"A few seen among the snow on a rocky mountain. Not seen again in Persia."—R. B. W.

♂ ♀. June 20, Bashkala, alt. 7200 ft.

"Plentiful in the hills around here; breeding now."—R. B. W.

I cannot agree with M. Sarudny and Baron Loudon that the Snowfinches of S.W. Persia are separable from those of the Caucasus.

CARDUELIS CARDUELIS.

♂. March 11, Diz River.

Wing 85 mm.; bill from nostril 11, from gape 13 mm.

This is a remarkable specimen, because it is entirely unlike the Goldfinches that inhabit the plateau of Persia, which commences a few miles to the east of the place where this example was obtained.

The Goldfinch of the Persian plateau was originally separated by M. Sarudny under the denomination *Carduelis elegans brevirostris* or *C. elegans minor* (Bull. Soc. Imp. Nat. Moscou, 1889, p. 133), while recently (Orn. Monatsb. xiv. p. 47) he has given a long description of it under the name *Carduelis carduelis minor*. I referred my specimens to *C. c. major* Tacz. (*cf.* 'Ibis,' 1903, p. 521); but I had not at that time been able to compare them with many Siberian birds. I have now done so, and consider that M. Sarudny is justified in his separation, owing to the smaller size of the wing in the Persian bird, the greyer tone of the mantle, and the grey of the rump, which is usually white in *C. c. major*. As to M. Sarudny's *C. c. loudoni* (Orn. Monatsb. xiv. p. 48) I can say nothing, except that if it is distinct its distribution in connection with *C. c. brevirostris* is an anomaly. In any case, it can have nothing to do with the present specimen, which differs from *C. c. brevirostris* of the Persian plateau in its larger size of wing, in its shorter and stouter bill, and in the colouring of the mantle, back, and breast-patches being of a rich reddish brown instead of a greyish brown. From *C. c. major* it differs in the same way, except that the wing measures about the same, and the rump is grey instead of white. The present specimen, in fact, differs from all other Goldfinches with which I am acquainted. It is perhaps nearest to the typical continental form, but is considerably larger and more richly coloured, especially as regards the red-brown of the upper side. It may be that the Goldfinch inhabiting this part of Mesopotamia is distinct, and it is unfortunate that Mr. Woosnam obtained only one specimen.

On the other hand, it is possible that this specimen was a migrant, and that it belongs to the form lately described ('Ibis,' 1906, p. 424) by Mr. Buturlin under the name of *C. c. volgensis* from Central and Eastern Russia.

LINOTA CANNABINA FRINGILLIROSTRIS (Bp. & Schleg.). [W. 521.]

Linaria cannabina (L.); [B. 249].

♀. March 21, Shuster.

♂. June 15, near Lake Urmia.

♀. June 16, Diza.

♂. July 20, Baibort.

The specimen from Shuster is rather dark for this pale form, and may be an example of the typical *L. cannabina.*

LINOTA FLAVIROSTRIS BREVIROSTRIS Moore.

Linota brevirostris Gould; [B. 250].

♂ ♀. June 20, Bashkala, alt. 7000 ft.

♂ ♀. July 15, Arab Keni, alt. 7000 ft.

These specimens are in worn plumage, and exhibit very pronounced dark markings on each side of the breast.

L. f. stoliczkæ Hartert (Vög. pal. Fauna, p. 77) is a very distinct form, but owing to the great amount of change in the plumage of these birds at different seasons, due to the effects of abrasion, it is very necessary to compare them in the same state of plumage. The surest guide is in the width of the dark mesial markings on the breast-feathers. In *L. f. brevirostris* these markings are much broader than in *L. f. stoliczkæ,* and if this is taken into consideration it will be found that *L. f. brevirostris* is confined to North Persia, Asia Minor, and the Caucasus, and does not range into Turkestan. The birds of the last country should be referred, I think, to *L. f. stoliczkæ* (*cf.* Hartert, Vög. pal. Fauna, p. 77).

The Thibetan *L. f. rufo-strigata* Walton (Bull. B. O. C. xv. p. 93) is like *L. f. stoliczkæ*, but is suffused with buff-colour.

CARPODACUS ERYTHRINUS (Pall.). [B. 250.]

♂. July 8, Erzerum.

♂. July 19, Baibort.

♀. July 26, Sumela.

"Not uncommon on marshy ground. They have a loud clear long-drawn whistle, which can be heard at some distance."—R. B. W.

RHODOPECHYS SANGUINEA (Gould).
Erythrospiza sanguinea (Gould); [B. 252].
♂. May 14, Derbend.
♂ ♂ ♀. June 16, Diza.

ERYTHROSPIZA GITHAGINEA (Licht.).
Bucanetes githagineus (Licht.); [B. 250].
♂. April 25, Bagh-i-Naksh (near Ispahan), alt. 7000 ft.
Wing 86 mm.

I cannot find any difference between this specimen and others from Egypt.

PYRRHULA PYRRHULA (L.).
♀ (juv.). July 23, Sumela.
Wing 89 mm.

This is an example in juvenile plumage, but from its size and general coloration I take it to belong to the typical race.

PASSER DOMESTICUS INDICUS Jard. & Selby. [B. 254; W. 523.]
♂ ♀. March 12, Dizful.
♂. May 28, Kermanshah.

PASSER MONTANUS (L.). [*B. 255.]
♂ ♀. July 12, Tortum River, alt. 4000 ft.

PASSER HISPANIOLENSIS TRANSCASPIUS Tschusi.
Passer salicarius (Vieill.); [B. 255; W. 523].
♀. March 4, Bund-i-Kir.
♂ ♀. March 14, Shus.

Mr. Woosnam appears to have found the Spanish Sparrow only in the low country between Bushire and Ahwaz, and it must be a local bird in Persia.

PETRONIA PETRONIA INTERMEDIA Hartert.
Petronia stulta (Scop.); [B. 255; W. 522].
♀. April 21, Ardal, alt. 8000 ft.

"A few seen on the northern edge of the oak-woods. Just beginning to lay."—R. B. W.

♂. April 24, Bagh-i-Badaran (near Ispahan), alt. 8000 ft.

"Not uncommon in this district, and between Ispahan and Kermanshah especially common, breeding in numbers in the 'Kanats' [underground watercourse]."—R. B. W.

The wing of the male measures 102 mm., that of the female 100. The birds thus agree in measurements, as they do also in coloration, with Dr. Hartert's *P. p. intermedia*, which is quite distinct from the typical *Petronia petronia* and *P. p. puteicola*.

PETRONIA BRACHYDACTYLA Bp. [B. 255 ; W. 522.]
♂. June 4, Sakiz.
♂. June 10, Lake Urmia.
"Very few seen."—R. B. W.

EMBERIZA MILIARIA L. [B. 257 ; W. 520.]
♀. March 18, Shus.
♂. March 21, Shuster.
♂. May 14, Derbend.

EMBERIZA CIA L. [B. 257.]
Emberiza cia stracheyi (nec Moore) ; [W. 521].
♀ [juv.]. July 12, Tortum River.
♂ ♀. July 25, } Sumela.
♂. July 26, }

These specimens, and also those which I obtained in S.W. Persia, should, I think, be referred to the typical *E. cia*, and not to the Himalayan form. They are a little darker than the typical *E. cia*, but not so dark as *E. c. stracheyi*; while the edgings of the primary-coverts, although not pure white, are not distinctly rufous as in *E. c. stracheyi*.

EMBERIZA BUCHANANI Blyth.
Emberiza huttoni Blyth ; [B. 258].
♂. June 21, Lake Van.

EMBERIZA HORTULANA L. [B. 259 ; W. 520.]
♂. April 20, Ardal.
♂. June 16, Diza.
♂ ♀. June 25, } Lake Van.
♂. June 27, }

EMBERIZA MELANOCEPHALA Scop. [W. 520.]

Euspiza melanocephala (Scop.); [B. 260].

Seven specimens, dated from April 9 at Mal Amir to June 4 at Sakiz.

EMBERIZA CINEREA SEMENOWI.

Emberiza (*Hypocentor*) *semenowi* Sar., Orn. Jahrb. xv. p. 217.

Emberiza citriniventris Sclater, Bull. B. O. C. xvi. p. 39; id. Ibis, 1906, p. 313, pl. xv.

♂. April 10, Mal Amir, alt. 4300 ft.

"Plentiful among the oak-trees on the sides of the mountains."—R. B. W.

This bird agrees exactly with the type of *E. citriniventris* Sclater from Syria, but it is evident from M. Sarudny's description that these specimens must be referred to his *E. semenowi*. Two other specimens (females) in the British Museum, from Bushire, are also of this form. In referring to one of these, Dr. Sharpe ('Ibis,' 1886, p. 497) remarked that it was "apparently a young female of the previous year, as the whole under surface is pale yellow, with blackish spots on the throat."

This bird is evidently the Eastern representative of the typical *E. cinerea*, from which it differs only in the breast and belly being yellow instead of ashy grey, and in the axillaries and under wing-coverts being also yellow instead of white.

(Since I wrote this, Dr. Sclater has published a correction of his description of this bird as an unnamed form. See 'Ibis,' 1906, p. 612.)

CORVUS CORAX LAURENCEI Hume.

Corvus corax L.; [B. 261; W. 518].

♂. April 9, Mal Amir.

"A few seen among the hills."—R. B. W.

Wing 455 mm.

This bird is browner than *C. c. corax*, smaller than *C. c. tibetanus*, and larger than *C. c. umbrinus*.

Corvus cornix sharpii Oates. [W. 518.]
Corvus cornix L.; [B. 262].
♀. March 18, Shus (near Dizful), alt. 500 ft.
♂ [juv.]. June 30, near Lake Van.

"A few seen on the Diz, Karun, and Kher-Khah Rivers. A nest in the Bachtyari woods contained six fresh eggs on April 15."—R. B. W.

Corvus capellanus Sclater.
♀. March 25, Shuteit River, alt. 350 ft.

"A few seen round Dizful and Shuster. Plentiful near Bund-i-Kir and between Bushire and the Karun. Not seen after we left the plains."—R. B. W.

This bird inhabits the maritime plain of the Persian Gulf. Mr. Cumming noted it as resident at Fao, and breeding from Feb. 15 to the end of March (*cf.* 'Ibis,' 1886, p. 477); but from Mr. Woosnam's observations and my own it seems that *Corvus cornix sharpii* inhabits part of the same district, and Mr. Woosnam's notes strengthen my previous opinion (*cf.* 'Ibis,' 1903, p. 518) that *Corvus capellanus* is a distinct species and not a race of *Corvus cornix*.

Corvus frugilegus L. [B. 263.]
♂. May 10, Feridan District. "A few seen."

"Seen in the Karun District and between Ispahan and Kermanshah. Old birds feeding noisy young in the Erzerum plain at the beginning of July."—R. B. W.

Colœus monedula collaris (Drummond).
**Colœus monedula* L.; [B. 263].
♂. June 14, near Lake Urmia.

"Nesting in holes in a steep bank."—R. B. W.

♂. July 18, Baibort.

In the bird from Baibort the feathers are so much bleached and abraded that many of them have become rusty-brown in colour. I saw similarly coloured Jackdaws in Algeria, and, being unable to shoot one, thought that they might belong to a distinct race. Although so greatly abraded, the grey edgings to the breast-feathers of this specimen are still present.

PYRRHOCORAX ALPINUS Vieill. [B. 263.]

♂. April 24, Bagh-i-Badaran (near Ispahan).

"Only red-billed Choughs were seen in the Bachtyari Mountains. From Bagh-i-Badaran to Kermanshah as many yellow-billed as red-billed. Always exceedingly difficult to get."—R. B. W.

In South-west Persia I saw only the red-billed species.

PICA RUSTICA Scop. [B. 264; W. 519.]

♀. May 20, Sehna.

GARRULUS GLANDARIUS ATRICAPILLUS Geoffr.

Garrulus atricapillus [B. 265; W. 518].

♂ ♂. April 16, mountains near Mal Amir.

GARRULUS GLANDARIUS KRYNICKI Kal.

♂ ♀ ♀. July 23, Sumela.

In these specimens the forehead is not black, as described by Mr. Buturlin ('Ibis,' 1906, p. 426), but whitish, as in typical *G. g. krynicki*.

STURNUS VULGARIS CAUCASICUS Lorenz. [W. 519.]

Sturnus vulgaris L.; [B. 266].

♀. April 24, Bagh-i-Badaran (near Ispahan).

♂. May 9, Feridan.

♂ [juv.], ♂. May 28, Kermanshah.

PASTOR ROSEUS (L.). [*B. 267.]

♂ ["Testes much enlarged."—R. B. W.]. May 14, Burujird.

"A few seen at Burujird, and afterwards plentiful to Lake Urmia."—R. B. W.

COLUMBA LIVIA Bp. [*B. 268.]

♀. May 10, Feridan District.

"Of three shot in the same place, one was a darkish bird with pure white rump, one a much lighter bird with uniform grey rump, and the other a light bird with white rump."—R. B. W.

Mr. Woosnam's remarks confirm my observations (*cf.* 'Ibis,' 1903, p. 567) with regard to the variability of this species and the possibility of *C. intermedia* being a mere variety and not a distinct race.

COLUMBA ŒNAS L. [*B. 269.]

♂ ♀. March 17, Shus.

"Plentiful on the Diz and Kher-Khah Rivers. Not seen again."—R. B. W.

The Stock-Dove has not, I believe, been recorded before with certainty from Persia, although Major St. John shot some Pigeons which appeared to him to be of this species (Blanf. p. 269). Mr. Woosnam's specimens are of the typical European form.

COLUMBA PALUMBUS L. [*B. 269.]

Columba palumbus casiotis Bp.; [W. 567].

♀. March 10, Diz River.

♀. May 29, Takht-i-Suleiman.

Although the concealed portions of the feathers of the neck-patches in these specimens are cream-coloured the exposed portions are white. The skin which I brought home from S.W. Persia was similarly coloured, and I thought at that time that the exposed portion was much bleached and therefore referred the specimen to *C. p. casiotis.* I now find that the concealed portions of these feathers in European birds are very often cream-coloured, and also that both in Mr. Woosnam's specimens and in mine this colour is not so dark as that of these feathers in true *C. p. casiotis.* I think, therefore, that these birds should be referred to the typical *C. palumbus.*

TURTUR TURTUR.

Turtur auritus Gray; [B. 270].

♂. May 10, Feridan District.

This specimen, which from Mr. Woosnam's notes appears to have been a migrant, is typical, and cannot be referred to *T. t. arenicola.* The wing measures 176 mm.

PTEROCLES ARENARIUS (Pall.). [B. 271; *W. 568.]

♂. June 25, Lake Van, alt. 5000 ft.

"Not uncommon."—R. B. W.

Pterocles alchata (L.).

**Pterocles alchata* (L.) ; [B. 271].

♂ ♀. Feb. 23, near Bushire.

"Seen in large packs."—R. B. W.

Dr. Blanford did not meet with this Sand-Grouse, but he was informed by Major St. John that he had seen it near Bushire in winter. These specimens have the subterminal bands to the primary-coverts white, and have a paler chest-band than Western birds.

Perdix perdix (L.).

**Perdix cinerea* (L.) ; [B. 273].

♂. June 15, near Lake Urmia, alt. 4000 ft.

Francolinus vulgaris Steph. [B. 273 ; W. 569.]

♂ ♀. March 17, Shus, alt. 500 ft.

Ammoperdix bonhami (Fraser). [B. 274 ; W. 569.]

Ammoperdix bonhami ter-meuleni Sar. & Loud., Orn. Jahrb. xv. p. 226 (Arabistan).

♂ ♀. March 4, Bund-i-Kir (Karun River).

Caccabis saxatilis chukar Gray. [W. 570.]

Caccabis chukar Gray, var. ; [B. 275].

Caccabis chukar weræ Sar. & Loud., Orn. Jahrb. xv. p. 225 (South Luristan and Arabistan).

♂. April 10, Mal Amir.

As Dr. Blanford has remarked, and as I noted in the 'Ibis' (1903, p. 570), the Western Persian and Mesopotamian Chukars are very pale in coloration. M. Sarudny and Baron Loudon have given a name to the bird, but it seems to me quite useless to bestow a name upon specimens from any particular locality in the case of such a bird, which varies greatly throughout its range, without first reviewing the whole group of which it is only one of many forms. Such naming is mere labelling and does not help us at all.

Coturnix communis Bonn. [*B. 278 ; W. 568.]

♂ ♀. March 25, Shuteit River.

Eudromias morinellus (L.). [B. 278.]
♂ ♂. Feb. 21, near Bushire.
"Common from Bushire to the Karun."—R. B. W.

Eudromias geoffroyi (Wagl.).
♂. May 18, Burujird, alt. 5000 ft.
"Three seen in open undulating grass-country."—R. B. W.

Dr. Blanford (*l. c.* p. 279) had no record for this bird, but he concluded that it must occur on the southern coast of Persia. It has been recorded in winter from the Persian Gulf.

Ægialitis dubia (Scop.). [W. 565.]
Ægialitis fluviatilis Bechst.; [B. 279].
♂. March 23, Shuteit River.
♂. June 10, Lake Urmia.

Vanellus cristatus Wolf & Meyer. [B. 280.]
♂. March 4, Bund-i-Kir.

With reference to Major St. John's note in 'Eastern Persia' (vol. ii. p. 280) that this bird breeds near Shiraz, I think it probable that he confused it with *Chettusia leucura*, which I found breeding near Shiraz and much resembles a Lapwing at a distance.

Hæmatopus ostralegus L. [B. 281; *W. 566.]
♂. July 1, Gop, alt. 4000 ft.
"A good many on the Marad Su."—R. B. W.

Totanus calidris (L.). [B. 285; *W. 564.]
♂ ♀. June 2, Divandere, alt. 6000 ft.

Tringoides hypoleucus (L.). [B. 285; W. 564.]
♂. July 16, Arab Keni.

Œdicnemus crepitans Temm. [*B. 288.]
♂. March 8, Shuteit River.

Porzana maruetta Leach. [B. 288.]
♀. March 18, Shus.
♀. May 8, Tiran, alt. 6000 ft.

Crex pratensis Bechst. [B. 288.]

♀. May 21, Bisitun, alt. 5000 ft.

The occurrences of this bird in Persia appear to be rare. Blanford has only one doubtful record.

Larus cachinnans Pall. [W. 566.]

Larus argentatus Gmel.; [B. 290].

♀. June 9, Lake Urmia, alt. 4000 ft.

"Bill yellow, tip of lower mandible scarlet; gape scarlet; feet yellow; iris pale silvery-brown, lids scarlet."—R. B. W.

The mantle is darker than that of *L. argentatus*.

Larus ridibundus L. [B. 292; W. 566.]

♀. April 26, Ispahan, alt. 5500 ft.

"A flock of about 20 seen on some swampy ground here."—R. B. W.

It may be noted that I met with a considerable flock of these Gulls on a marsh about a hundred miles from the coast until April 13th. The flock at Ispahan noted by Mr. Woosnam is much more remarkable, as the date is later and the locality very much further inland.

Sterna fluviatilis Naum. [*B. 293.]

♂. July 1, near Gop, alt. 4000 ft.

"Plentiful on the Marad Su."—R. B. W.

Sterna anglica Montagu. [W. 566.]

♀. July 1, near Gop.

"Plentiful near the Marad Su."—R. B. W.

Sterna bergii Licht. [*B. 294.]

♂. Jan. 31, Muskat.

"A common bird at Muskat in January."—R. B. W.

Sterna minuta L. [*B. 294.]

♀. July 1, near Gop.

Ardetta minuta (L.). [B. 296; W. 563.]

♀. May 28, Kermanshah District.

DESCRIPTION OF PLATE II.

The accompanying map (Plate II.) shews all the places mentioned by Mr. Woosnam upon his labels, which it has been possible to identify. The route-line must be regarded as approximate, since it only represents a line drawn through these localities and is intended merely to assist reference. The altitudes given in the figures under the names are in English feet, and must likewise be regarded as approximate, for they are also taken from Mr. Woosnam's labels, and vary according to the spot at which he shot the bird, and do not exactly represent the altitude of the town or village near which the bird was obtained. The following is an itinerary based on the labels:—

Bushire, Feb. 10–14.
Khisht River (near Bushire), Feb. 14.
Ahwaz, Feb. 26–28.
Bund-i-Kir, March 2–6.
Shuteit River, March 8.
Diz River, March 10–11.
Dizful, March 12.
Shus, March 14–19.
Shuster, March 21.
Shuteit River, March 23–26.
Ahwaz, March 28–30.
Ram Hormuz, April 2–6.
Mal Amir, April 8–10.
Deh-i-Diz, April 14.
Dopulan, April 18.
Ardal, April 20–21.
Shalamzar, April 21–23.
Bagh-i-Badaran (near Ispahan), April 24.
Bagh-i-Naksh (near Ispahan), April 25.
Ispahan, April 26–30.
Tiran, May 8.
Feridan, May 9–11.
Barbarud, May 11–12.
Burujird, May 14–18.
Sahna, May 20.
Bisitun, May 21.
Kermanshah, May 26–28.
Takht-i-Suleiman, May 29.
Sehna, June 1.
Divandere, June 2.
Sakiz, June 4.
Suj Bulak, June 8.
Lake Urmia, June 9–15.
Diza, June 16.
Bashkala, June 16–20.
Lake Van, June 21–30.
Gop, July 1.
Erzerum, July 8.
Tortum River, July 10–12.
Arab Keni, July 15–16.
Baibort, July 19–21.
Sumela, July 22–26.
Trebizond.

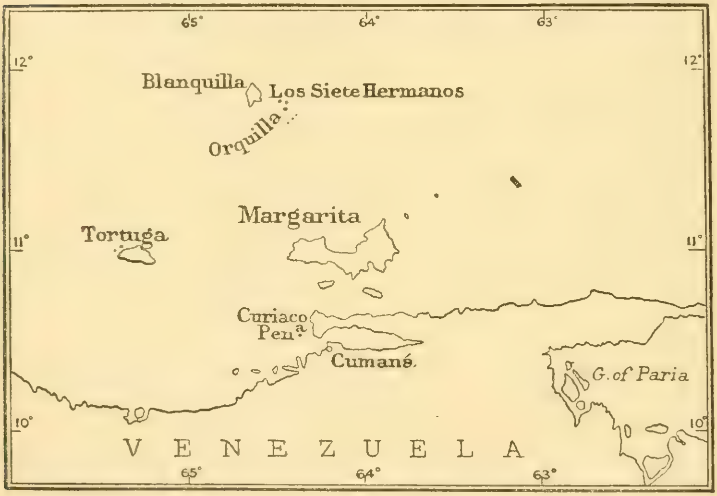
IV.—*On the Birds of Blanquilla Island, Venezuela.*

By Percy R. Lowe, B.A., M.B., &c.

So far as I am aware, there are no previous records of the avifauna of this island. Count Dalmas visited it a few years ago, but published no account of his researches. Blanquilla is a pear-shaped island, $6\frac{1}{4}$ miles long by over 3 miles wide, with its cone and base lying due north and south. It is 70 miles due north from the mainland of Venezuela, and 46 miles N. by W. from the westernmost point of Margarita, another and larger island which lies close to the mainland. Within sight of Blanquilla are seven very small rocky islets (well wooded, high, and steep) called Los Hermanos, of which the largest is called Orquilla—not to be confounded with Orchilla, which lies more to the west and is considerably larger.

Blanquilla is low, flat, and more or less barren. It is uninhabited, except by a few fishermen, who come over for a month or two in the season from Margarita. Low cliffs of coral-limestone and lava bound its southern shore, where we landed; and from these the land gradually rises to a flat central plateau, 200 feet, more or less, above sea-level.

Text-fig. 6.



Outline Map of Blanquilla and the neighbouring Islands.

The cliffs consist of very tough, porous black rock, honeycombed in places with air-bubbles. Here and there along the coast are little coves fringed with mangroves, which in places grow to quite tall trees. In these mangroves I found nests, with eggs, of *Butorides* and *Nycticorax*. These birds have apparently a hard struggle with the Iguanas, which swarm among the bushes and prey on their eggs.

The vegetation on the island elsewhere is very similar to what is found at the western end of Margarita and on the low arid stretches of the Cariaco Peninsula of the mainland of Venezuela, and on the island of Curaçao. The central plateau is, however, bare, flat, and gravelly, dotted here and there with thin patches of acacia and cactus (*Opuntia* and *Cereus*).

Thinly scattered grass, dry and tindery, was struggling for existence on the parched-up ground at the time of our visit, but probably it springs up and flourishes in the rainy season, for, strangely enough, we saw large numbers of donkeys, horses, and goats all over the island.

Stretching along the eastern side of the plateau is a long belt of thick bushy scrub, with fairly well-grown trees here and there. Progress through it is tiresome, as the ground is covered with sharp jagged edges of coral-limestone rock, which protrudes through the scanty covering of soil. Dense growths of prickly shrubs, innumerable sand-flies, and a fiery heat complete the visitor's discomfort.

I could see no evidences of water, either in dried-up water-courses or shallow ponds. The fishermen dig wells near the shore, from which they get brackish and disgusting water.

Our stay at the island was limited to one day (April 5th, 1906); but by dint of hard walking from early morning till five in the afternoon, when we left, I managed to secure 55 specimens of birds. Of those seen, but of which specimens were not secured in the short time at my disposal, I noticed one other Tyrant-bird (most probably *Tyrannus melancholicus*) and examples of *Polyborus*, *Buteo*, *Cerchneis*, *Ceryle*, and *Nycticorax*. I also shot a Dove, which I was unable to secure, but I believe it to have belonged to the genus *Zenaïda*.

I saw no examples of the genera *Cardinalis*, *Conurus*, *Quiscalus*, *Icterus*, *Dendroplex*, *Melanerpes*, *Cœreba*, or *Polioptila*, some of which might well have been expected; and, so far as I could ascertain in the limited time, only one kind of Humming-bird (*Chrysolampis moschitus*), which is very common, occurs on the island. This is an abundant form on the mainland, but, strangely enough, is not found on Margarita Island, which lies much nearer to Venezuela. *Doleromyia pallida*, on the other hand, which is very common on Margarita, was conspicuous by its absence on Blanquilla, although the conditions for its existence seem to be absolutely identical.

For the opportunity of visiting the island I am much indebted to the kindness of Sir Frederic Johnstone and Lady Wilton, who, at considerable inconvenience to themselves, allowed their yacht 'Zenaïda' to be taken to Blanquilla in the interests of ornithological research. I also take this opportunity of expressing my gratitude to my kind friend, Dr. Bowdler Sharpe, who on this, as on many other occasions, has generously given me his invaluable help.

The specimens that we collected on Blanquilla Island are referable to eight species only, as follows :—

1. Chamæpelia perpallida.

Columbigallina passerina perpallida Hartert, Ibis, 1893, p. 304.

Columbigallina passerina Berl. J. f. O. 1892, p. 97 (Curaçao).

Chamæpelia perpallida Sharpe, Hand-l. Birds, i. p. 82.

Three adult males and five females.

The Ground-Doves from this island (as well as a series of three adult males and three adult females from the island of Margarita) are conspicuously paler than examples from Jamaica, which are apparently the true *C. passerina*. This pale colour, which prevails in the plumage of both upper and under parts and in both sexes, is even more apparent in the females than in the males.

In a series of eight females taken from the two islands the abdomen is creamy white, contrasting strongly with birds from Jamaica and the Lesser Antillean Islands, and still more so with examples from Florida (*C. terrestris*) and Mexico, Texas, and Lower California (*C. pallescens*).

In the males of my series from the two islands the occipital and nuchal patch of lavender-blue, besides being paler and less conspicuous, is almost obscured by a band of brown, which in specimens from Jamaica, Florida, and the Lesser Antilles exists in a much less conspicuous form, so that the blue colour is more noticeable and is altogether brighter.

I have examined a large series of males in the British Museum labelled *C. passerina*, from both the mainland and the various Antillean islands, and it would appear that the further south one goes the less marked and paler this blue patch on the back of the head and neck becomes, and the more noticeable the brown discoloration. Thus in *C. terrestris* and *C. pallescens* the blue is very bright and there is hardly any brown; while in birds from Venezuela, Trinidad, and British Guiana the opposite state of things exists.

The under-tail-coverts of my specimens from Blanquilla and Margarita are distinctly lighter in appearance than in others—a condition produced by the paler centres to the feathers and the broader and nearly pure white margins.

The greater wing-coverts also, and the outer webs of the secondaries, tend to be margined with whitish, and are of a lighter brown, producing a distinctly pale appearance in the folded wing.

The bill of this bird varies from orange and orange-yellow to yellow at the base. In some females the bill is almost entirely black.

In respect of the colour of the bill in birds of this genus, it must be remarked that notes made from dried skins are practically worthless. Thus Mr. Chapman (Bull. Am. Mus. iv. p. 293) says:—"The bird from Eastern North America differs from the true *C. passerina* of Jamaica in having the base of the bill *red instead of yellow*." Yet a male specimen in my collection from Jamaica (1904) has a note on the back of the label on the colour of the bill in the *fresh* state as follows: "Bill orange-red, tipped with dark horn." It is now brownish horn-coloured; and Gosse, in his 'Birds of Jamaica' (1847, p. 311), in describing the Ground-Dove, *Chamæpelia passerina*, says: "Beak orange, black at the tip." Mr. M. J. Nicoll also, in a paper on "Birds from the West Indies"

('Ibis,' 1904, p. 572), says: "This species varies considerably in plumage and *also in the coloration of the bill.*

I have carefully examined a large series of specimens from Puerto Rico, St. Thomas, St. Croix, St. Kitts, Dominica, Grenada, &c., some of which I shot myself, and have rather reluctantly come to the conclusion that there are no sufficient grounds on which to separate them from the Jamaican form. Dr. Hartert has remarked on the much richer and darker colour of the birds from St. Thomas; and my opinion is that the squamate markings on the breasts of specimens, more especially females, in the series, are distinctly coarser, darker, and more noticeable, but further than this it is difficult to go.

As regards examples from the Cayman Islands, Mr. Ridgway separates them as *C. passerina insularis,* describing them as very similar to *C. bahamensis,* "but larger, and with the basal half (or more) of the bill distinctly orange or yellowish." I have examined specimens collected on these islands by Dr. Bowdler Sharpe, Mr. M. J. Nicoll, and myself, and beyond the fact that they are slightly paler above than specimens of *C. passerina* from Jamaica, I am unable to find any differences. In this I am in agreement with Mr. Cory ('Birds of West Indies,' 1889, p. 297) and Mr. Nicoll ('Ibis,' 1904, p. 585).

The Ground-Doves of Cuba have been lately distinguished as *C. aflavida* (Palm. & Riley, P. Biol. Soc. Wash. xv. p. 33). Seven or eight specimens in the British Museum have a deeper and somewhat rusty tinge below, probably due to stains from iron-impregnated soil.

C. terrestris and *C. pallescens* both appear to be good species. In a splendid series of the former bird in the British Museum, the males are of a very uniform dull vinaceous tint beneath, both over the breast and on the flanks and abdomen; the females are also of a uniform ashy-brown tint or almost mouse-colour beneath. The lavender-blue patch on the head and neck in the male birds is conspicuously bright and not obscured by brown. It is, indeed, a simple matter to pick out a Floridan bird, especially a female, out of a very large series from all parts.

Mr. Chapman, in comparing *C. terrestris* and *C. passerina* from Jamaica (Bull. Am. Mus. iv. p. 293), says that the squamate markings on the breasts of females of *C. terrestris* are much more marked than in Jamaican examples; but the opposite seems to me to be the case in the series which I have had the opportunity of examining. The throat, as Mr. Chapman remarks, is much whiter in Jamaican specimens than in those from Florida.

Dr. Hartert ('Ibis,' 1893, p. 304) says: "My pale birds from Curaçao (*C. p. perpallida*) are in colour nearest to the Mexican bird, but the wings are a little shorter, the colour still a trifle paler, and the base of the bill yellow instead of red." Dr. Hartert has very kindly sent me four males and a female of his *C. p. perpallida* for comparison; and my specimens, both from Blanquilla and Margarita, agree with his.

The males of *C. perpallida* have the wings 78–81 mm.; the females measure 74–78 mm. Males of *C. pallescens* from Mexico have the wings 84–87 mm., and the females 85–87 mm.

2. BUTORIDES ROBINSONI.

Butorides robinsoni Richmond, Proc. U.S. Nat. Mus. xviii. p. 655 (1895).

I obtained only one specimen of this species on the island, a female, which was breeding. It does not agree entirely with the Margarita specimens of *B. robinsoni*, being much more rufous on the cheeks and ear-coverts, and having the neck dusky grey tinged with vinous.

3. CHRYSOTIS ROTHSCHILDI.

Chrysotis rothschildi Hartert, Bull. B. O. C. iii. p. xii; id. Ibis, 1893, pp. 123, 328.

These Parrots were pretty common on the island, and we came across several fairly large bands. I shot three or four, but unfortunately only saved two skins—of an adult male and a young bird. The adult male has no signs of yellow on the chin or throat, and two bands of bluish or bluish green extend upwards on either side of the chin and throat to the base of the lower mandible and well on to the cheeks; the forehead is very pale grey, the grey gradually merging into the yellow of the crown, which barely extends to the centre of the vertex. The bases of the feathers on the forehead are salmon-coloured. The ear-coverts are greenish blue, so that there is only a very narrow band of yellow extending below and beyond the eye. A few scanty feathers on the throat are white. The cubital edge is scarlet; the yellow shoulder-patch is slightly mixed with red: the outer bend of the wing is yellowish green. The abdomen is strongly tinged with blue, the feathers being slightly edged with black.

The young specimen is decidedly more green, with no bluish tinge on the abdomen. The distribution of the yellow coloration is similar, but this specimen has a yellow chin and throat.

4. CHRYSOLAMPIS MOSCHITUS.

Chrysolampis moschitus Salvin, Cat. B. xvi. p. 113 (1892); Sharpe, Hand-l. ii. p. 119 (1900); Hartert, Tierr., *Trochili*, p. 100 (1900).

Four males and four females.

These specimens differ in no way from examples from the mainland.

This bird is very common on Blanquilla; but, strange to say, in Margarita—which is between it and the mainland and only fifteen miles distant from the latter, while Blanquilla is eighty miles away—I saw only one solitary specimen of this Humming-bird during my two visits. Neither Capt. Robinson nor Mr. Clarke met with the species on Margarita, although the conditions obtaining on the two islands seem to be practically identical.

5. MYIARCHUS TYRANNULUS.

Myiarchus tyrannulus Sclater, Cat. B. xiv. p. 251; Richmond, Proc. U.S. Nat. Mus. xviii. p. 673 (1895); Clarke, Auk, xix. p. 264 (1902).

This Tyrant-bird is fairly common on Blanquilla, but I shot only one specimen, an adult male. It differs from two examples from Margarita Island and those from the mainland in being decidedly lighter in colour above and below. The pileum is also paler brown, and a rather noticeable grey nuchal collar is present in the Blanquilla bird, which does not exist in the others.

6. MIMUS GILVUS.

Mimus gilvus rostratus Ridgway, Proc. U.S. Nat. Mus. 1884, p. 173 (Curaçao); Berl. J. f. O. 1892, p. 74 (Curaçao); Hartert, Ibis, 1893, p. 294.

In comparison with a series from St. Vincent, Grenada, and the Grenadines, my six specimens from Blanquilla are distinctly paler above. There is a strong ashy tint over the breast in the Blanquilla bird, contrasting in this respect with the paler colour of the lower parts in the St. Vincent and Grenada birds. There is also some fairly well-marked streaking on the flanks of the Blanquilla birds, but not more so than in some of the specimens labelled *M. gilvus* in the British Museum.

The irides of the Blanquilla birds vary from almost chrome-yellow to pinkish hazel; the females usually have yellowish irides, the males pink. The females generally have the head much wider in appearance than the males, and I could as a rule prognose the sex by this sign before dissection, and the colour of the iris settled the point.

If there is any difference at all, the Blanquilla bird would appear to be intermediate between ordinary forms of *M. gilvus* and *M. rostratus*.

This Mocking-bird was not breeding at the time of our visit.

7. DENDRŒCA RUFO-PILEATA.

Dendrœca rufopileata Ridgw. Proc. U.S. Nat. Mus. vii. 1884, p. 173; Berl. J. f. O. 1892, p. 76 (Curaçao); Hartert, Ibis, 1893, vol. v. p. 311.

I have compared a dozen specimens of the bird from Blanquilla with a series from Curaçao, Aruba, and Bonaire, which Dr. Hartert has kindly sent me for examination, and there seems to be no doubt that they are all identical. My specimens are in full plumage and agree exactly with Mr. Ridgway's original description. They were evidently just about to breed. Dr. Hartert's specimens seem not to have attained full plumage. All my males have exactly the same abruptly-defined chestnut-rufous patch which covers the forehead, crown, and occiput.

I have compared my series with specimens from Barbados (*D. capitalis*), and, except that the pileum and crown in the Barbadian birds are of a deeper tint, there is little difference between the two forms.

8. EUETHIA JOHNSTONII.

Euethia johnstonei Lowe, Bull. B. O. C. xix. p. 6.

This form, of which I obtained a series of both sexes, is uniformly and markedly darker than examples belonging to the genus from all other localities, and I have no hesitation in separating it.

Adult male. Above dull olive-green, uniformly duller than in *E. omissa*, with conspicuous black patches formed by the dark centres of the feathers, which dark patches extend well down over the mantle and interscapular region to the centre of the back. Anteriorly, the dark blotches gradually merge into the uniform black of the crown and forehead. In some specimens the black of the crown extends well backwards over the occiput. The head and entire under parts are uniform plain black. There are no white edgings to the feathers on the abdomen or vent, or at any rate not in adult birds. The sides and flanks are black, faintly tinged with olive. The under wing-coverts are black; and the under tail-coverts black, margined with dusky grey. The feet and tarsi are darker than in the other species of this genus.

Adult female. Beneath of a decidedly more ashy tint than specimens of *E. bicolor*, and above ashy brown as compared with olive-green in that species.

Euethia johnstonii may therefore be easily distinguished from *E. bicolor* by its blacker under surface and the general melanotic tendency of the plumage.

I have had much pleasure in naming this bird after Sir Frederic Johnstone.

In *E. marchii* the black coloration of the under parts ceases abruptly at the lower margin of the breast, and this is sufficient, without other characters, to distinguish the species not only from the Blanquilla bird but from all others of the genus. I have examined the very fine series of *E. marchii* from Jamaica, San Domingo, and Barbados, in the British Museum, while I have a few examples in my own collection; and this feature is very striking throughout.

In describing *E. sharpii*—which, from its locality (Curaçao), might be thought likely to be similar to the Blanquilla bird—Dr. Hartert ('Ibis,' 1893, p. 316) says:—"♂. Beneath similar to *E. bicolor*, but the black above confined to the forehead and sides of head; back and rump paler, a little more shaded with greyish; the black of the breast somewhat less deep and duller."

In depth of colour the Blanquilla bird approaches nearest to specimens from Venezuela, Trinidad, and Margarita Island, which birds Dr. Hartert (*l. c.*) calls *E. omissa*; but in these the colour above is decidedly lighter, the dark blotches over the mantle are absent, the head is not so black, the flanks are olive-grey instead of black, the under wing-coverts are not nearly so dark, and the abdomen and vent tend to have light greyish edges. One of my specimens from Margarita Island has the "scaling" on the abdomen, while the other has not.

Speaking of the differences between birds from the Lesser Antilles, Tobago, Venezuela, and Margarita Island (*E. omissa*) and birds from the Bahamas (*E. bicolor*), Mr. Ridgway says (B. North & Middle America, i. p. 540):—"Collectively they represent a form which may readily be distinguished from *E. b. bicolor* of the Bahamas by the decidedly shorter wing and tail and the brighter olive or olive-greenish upper parts."

While a series of six males in my collection from St. Thomas and St. Kitts agree with this description with respect to colour, one specimen from St. Thomas is decidedly darker than any I have seen from the Bahamas. On the other hand, in an adult male from Inagua (Bahamas), in the British Museum, the colour above is decidedly as light as or lighter than that in the St. Thomas series. There is, in fact, an apparently endless series of gradations in the depth of colour above and in the disposition of the "solid" portion of the black on the under parts in birds from the Bahamas and the Lesser Antilles. I do not find, as Mr. Ridgway says on the same page, that this "solid" portion of the black chest in specimens from St. Thomas is as restricted as in *E. marchii*; nor is it so in specimens from St. Kitts, Virgin Islands, Dominica, St. Vincent, Montserrat, Antigua, and Anguilla. In examples from all these islands the black *may* come well over the abdomen, with only narrow edgings to the feathers in the middle line. The flanks are dull olive-grey. It would appear, indeed, that the disposition of the black on the under parts is largely a question of age; and I should be inclined to unite the Bahaman and the Lesser Antillean birds under the name of *E. bicolor*.

V.—*Notes on the Parrots.* (Part VII.)

By T. SALVADORI, H.M.B.O.U.*

Subfam. PSITTACINÆ and PALÆORNITHINÆ.

(Cat. Birds Brit. Mus. xx. pp. 377, 387.)

Subfam. PSITTACINÆ.

PSITTACUS Linn.

PSITTACUS ERITHACUS Linn.; Boc. Jorn. Sc. Lisb. (2) no. xiii. p. 10 (1895) (Fernando Po); Sclat. P. Z. S. 1902, p. 170; Salvad. Mem. Ac. Tor. (2) liii. p. 119 (1903); Rchnw. Vög. Afr. ii. p. 2 (1902).

Psittacus erythacus Hartert, Journ. f. Orn. 1886, p. 598 (Niger, Lokodscha, Congo, Accra); Jacks. & Sharpe, Ibis, 1902, p. 612; Alex. Ibis, 1903, p. 397.

Psittacus erythacus megarhynchus Hartert, Kat. Vög. Senck. Mus. p. 157 (note, Congo) (1891).

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* Continued from 'The Ibis,' 1906, p. 659.

Psittacus erithacus var. *megarhyncha* Dub. Syn. Av. p. 3 (1899).

Psittacus megarhynchus Sharpe, Hand-list, ii. p. 26, n. 2 (1900).

Dr. Hartert, noticing that specimens from Congo are paler and have a much stronger bill, has distinguished them by a trinomial.

Dr. Sclater has mentioned a specimen with a pure white tail living in the Zoological Society's Gardens.

CORACOPSIS Wagl.

CORACOPSIS VASA (Shaw); Richm. Pr. U. S. Nat. Mus. xix. p. 685 (1897).

CORACOPSIS NIGRA (Linn); Richm. t. c. p. 685 (1897).

CORACOPSIS BARKLYI E. Newt.; Ridgw. Pr. U. S. Nat. Mus. xviii. p. 513; Nicoll, Bull. B. O. C. xvi. p. 106; Ibis, 1905, p. 709 (Praslin I.).

DASYPTILUS Wagl.

DASYPTILUS PESQUETI (Less.); Rothsch. & Hartert, Nov. Zool. iii. p. 17 (1896), viii. p. 81 (1901).

Subfam. PALÆORNITHINÆ.

ECLECTUS Wagl.

ECLECTUS PECTORALIS (P. L. S. Müll.); Hartert, Nov. Zool. v. p. 530 (Sudest Islands, Solomons, and New Guinea) (1898).

Eclectus pectoralis pectoralis Rothsch. & Hartert, Nov. Zool. viii. p. 81 (1901).

Eclectus pectoralis aruensis Gray; Hartert, op. cit. iii. p. 535 (1896); Rothsch. & Hartert, op. cit. viii. p. 82 (1901).

Eclectus aruensis Sharpe, Hand-list, ii. p. 27, n. 2 (1900).

Eclectus pectoralis var. *aruensis* Dub. Syn. Av. ii. p. 1054 (1904).

Eclectus pectoralis solomonensis Rothsch. & Hartert, Nov. Zool. viii. pp. 82, 188, 378 (1901); ix. p. 588 (1902); xii. p. 253 (1905) (Rendova, New Georgia, Gizo, Bougainville).

Eclectus pectoralis var. *solomonensis* Dub. Syn. Av. ii. p. 1054 (1904).

Gray was the first to point out some slight differences between the Aru birds and those from the mainland of New Guinea. I have not failed to mention them (Orn. Pap. e Mol. i. p. 201), but I am still of opinion that these differences are not sufficient for establishing even a subspecies. The same remark applies to the Solomon Islands birds*, which certainly are not smaller than those from Korido. Beccari's and d'Albertis's series shew individual variations in size and in the green colouring of the males.

ECLECTUS RORATUS (P. L. S. Müll.); Hartert, Nov. Zool. x. p. 46 (1903) (Batjan, Morty).

ECLECTUS CARDINALIS (Bodd.); Hartert, op. cit. vii. p. 229 (1900) (Kayeli).

ECLECTUS WESTERMANNI (Bp.); Rothsch. Bull. B. O. C. x. p. ii (1899); Scl. P. Z. S. 1902, p. 170, pl. xviii. (♂ ♀).

? *Eclectus* sp. incert., Everett apud Hartert, Nov. Zool. iii. p. 596, n. 64 (1896) (Lombock).

Several specimens of this rare species have been received alive by the Hon. Walter Rothschild and deposited by him in the Zoological Society's Gardens.

The male was already known, it is entirely green without the red patches on the sides of the breast.

The *female*, hitherto unknown, is similar to the female of *E. pectoralis*, but differs in having a blue collar and dull purple lower breast, while *E. pectoralis* has both collar and breast of the same bright blue colour. The under tail-coverts are also of a much darker and duller red. The ring of blue round the eyes of *E. pectoralis* is, moreover, absent in *E. westermanni*. Both sexes are likewise much smaller than in *E. pectoralis* (Rothschild).

The habitat of this species is still unknown.

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* Dr. Hartert (Nov. Zool. v. p. 530) did not find that the Solomon birds were different from those of the Sudest Islands and New Guinea.

ECLECTUS CORNELIA (Bp.); Hartert, Nov. Zool. iii. p. 587 (Sumba I.) (1896), v. p. 173 (1898); Sharpe, Hand-list, ii. p. 27 (1900).

The habitat and the male of this species were discovered by Mr. Doherty.

Male. Above dark green, most of the feathers with lighter borders, head and neck lighter green: primaries below and inner webs above black: outer webs deep blue, mostly with narrow greenish edges: under side dark green, flanks also dark green; sides of breast and upper abdomen, as well as under wing-coverts (except just on the edge of the wing), red: rectrices above dark green, blue towards the tip, tips yellowish; tail black below, with dirty yellow tips. "Iris orange-ochre, maxilla orange-red with yellow tip, mandible black" (*Doherty*).

Hab. Sumba (Lesser Sunda Islands).

GEOFFROYUS Bp.

GEOFFROYUS KEYENSIS Schleg.

Geoffroyus personatus capistratus (Gray): Hartert, Nov. Zool. viii. p. 4 (1901) (Key I.); Rothsch. & Hartert, t. c. p. 84 (1901).

GEOFFROYUS TIMORLAOENSIS Meyer.

Geoffroyus personatus timorlaoensis Rothsch. & Hartert, l. c.

GEOFFROYUS PERSONATUS (Shaw); Hartert, op. cit. v. p. 119 (1898) (Timor).

Geoffroyus personatus personatus Rothsch. & Hartert, op. cit. viii. p. 82 (1901); Hartert, op. cit. xi. p. 191 (1904).

GEOFFROYUS ARUENSIS (Gray).

Geoffroyus personatus aruensis Rothsch. & Hartert, t. c. p. 84 (1901) (Aru Islands, S.E. New Guinea, and Fergusson I.).

GEOFFROYUS ORIENTALIS Meyer, Abh. k. zool. u. anthrop. Mus. Dresd. 1890–91, no. 4, p. 4 (1891); Sharpe, Hand-list, ii. p. 28, no. 6 (1901).

Geoffroyus personatus orientalis Rothsch. & Hartert, Nov. Zool. viii. p. 84 (1901) (Huon Gulf).

Allied to *G. aruensis.*

I have received from Dr. Madarász two specimens of this species for examination.

The *male* is almost undistinguishable from its Aruan relative, the blue of the head is perhaps less violet. I do not see that the brown cubital patch is paler.

The *female* has the brown of the head above with a bluish shade; whether the cubital brown spot is paler than in the female of *G. aruensis* I cannot say, having no female of the latter at hand for comparison.

Hab. Huon Gulf (N.E. New Guinea).

A doubtful species in my opinion, also according to Rothschild and Hartert.

GEOFFROYUS SUDESTIENSIS De Vis; Sharpe, Hand-list, ii. p. 28, n. 7 (1900).

Geoffroyus aruensis sudestiensis Hartert, Nov. Zool. v. p. 531 (1898); vi. pp. 81, 213 (1899).

Geoffroyus personatus sudestiensis Rothsch. & Hartert, op. cit. viii. p. 84 (Sudest and St. Aignan Islands in the Louisiade Group) (1901).

"Closely allied to *aruensis*, but differing in the total absence of a reddish-brown spot near the shoulders." (*Rothsch. & Hartert.*)

GEOFFROYUS CYANICARPUS Hartert; Sharpe, Hand-list, ii. p. 28, n. 5 (1901).

Geoffroyus aruensis cyanicarpus Hartert, Nov. Zool. vi. p. 81 (Rossel I.) (1899).

Geoffroyus personatus cyanicarpus Rothsch. & Hartert, op. cit. viii. p. 84 (1901).

"The males of the *Geoffroyus* from Rossel Island agree with *G. aruensis sudestiensis* De Vis in the absence of the reddish-brown patch on the wing-coverts; but they differ from both *G. aruensis aruensis* and *G. aruensis sudestiensis* in having the whole edge of the wing from the bend to the beginning of the outermost primary blue like the under wing-coverts, instead of light green." (*Hartert.*)

Hab. Rossel Island in the Louisiade Archipelago.

Geoffroyus rhodops (Schleg.); Hartert, Nov. Zool. vii. p. 230 (1900) (Buru).

Geoffroyus personatus rhodops Hartert, op. cit. viii. p. 4 (1901) (Ceram-laut); Rothsch. & Hartert, t. c. p. 83 (1901) (Buru, Amboina, Ceram, Ceram-laut).

Geoffroyus explorator Hartert.

Geoffroyus personatus explorator Hartert, t. c. p. 4 (Manawoka, Goram Islands) (1901); Rothsch. & Hartert, t. c. p. 83 (1901).

"Differs from *G. rhodops* in its much smaller size, the wing of the male measuring only 175–178 mm., against 189–195 in *G. rhodops,* in the under mandible being apparently always pale, and in the green colour being as a rule more yellowish. The crown of the female seems to be lighter brown." (*Hartert.*)

Hab. "Goram and Manawoko Islands, between Ceram and Key" (*Hartert*).

Scarcely different from *G. rhodops.*

Geoffroyus floresianus Salvad.; Hartert, Nov. Zool. v. p. 44 (1898).

Geoffroyus floresianus floresianus Hartert, t. c. p. 172 (1898).

Geoffroyus personatus floresianus Rothsch. & Hartert, op. cit. viii. p. 83 (1901).

The *female* has the head dark brown (*Rothsch. & Hartert*).

Geoffroyus sumbavensis Salvad.; Hartert, op. cit. iii. pp. 563, 596 (Lombock) (1896).

Geoffroyus floresianus sumbavensis Hartert, op. cit. v. p. 473 (1895).

? *Geoffroyus lansbergii* Finsch, Not. Leyd. Mus. xx. p. 225 (1898) (Sumbawa); Sharpe, Hand-list, ii. p. 28, n. 12 (1901).

Geoffroyus personatus sumbavensis Rothsch. & Hartert, Nov. Zool. viii. p. 83 (1901).

The adult female has the head dull brownish brick-red (*Hartert*).

Lombock birds, according to Dr. Hartert, are the same as those from Sumbawa or Sambawa.

According to Dr. Finsch, the type of *G. lansbergii* is a young bird, and most likely a curious variety, with light brown cross-bars on the upper parts.

GEOFFROYUS TJINDANÆ Meyer, Not. Leyd. Mus. xiv. p. 267 (Sumba I.) (1892); Hartert, Nov. Zool. iii. p. 587 (1896).

Geoffroyus jukesii Meyer (nec Gr.), Verh. z.-b. Ges. Wien, 1881, p. 762 (Sumba); ? id. Sitzb. Ges. Isis Dresd. Abh. i. p. 15 (Wetter) (1884).

Geoffroyus floresianus tjindanæ Hartert, Nov. Zool. v. p. 472 (1898).

Geoffroyus personatus tjindanæ Rothsch. & Hartert, op. cit. viii. p. 83 (1901).

Similar to *G. personatus* in the yellowish-green coloration, but larger and with the cap coming much lower down on the nape. Wing 6·3–6·7 inches; tail 3·5; bill 1–1·05.

Hab. Sumba or Sandalwood Island.

This is Meyer's description, but, according to Dr. Hartert, Sumba birds are darker than those from Sumbawa (*G. sumbavensis*), some of which are distinctly *yellowish-green*!

The last remark about this species by Rothschild and Hartert reads as follows: "Quite like *G. sumbavensis*, but slightly larger, under wing-coverts perhaps a shade lighter."

It would be interesting to compare the female of this species with those of the allied forms, as in the genus *Geoffroyus* females of allied species often differ more than the males.

GEOFFROYUS PUCHERANI Bp.

Geoffroyus personatus pucherani Rothsch. & Hartert, Nov. Zool. viii. p. 85 (1901).

GEOFFROYUS JOBIENSIS (Meyer).

Geoffroyus personatus jobiensis Rothsch. & Hartert, Nov. Zool. viii. p. 85 (1901) (Jobi Island, Konstantinhafen, Stephansort).

This species is not peculiar to Jobi, but is found also along the north-eastern coast of New Guinea, as far east as Astrolabe Bay.

GEOFFROYUS MYSORENSIS (Meyer).

Geoffroyus personatus mysoriensis Rothsch. & Hartert, Nov. Zool. viii. p. 85 (1901).

GEOFFROYUS DORSALIS Salvad.; Rothsch. & Hartert, l. c.

I have already mentioned the probability of *G. dorsalis* being an accidental variety of *G. pucherani*: Rothschild and Hartert are very positive on the subject, but it remains to explain the strange character shown by the type of *G. dorsalis* in the yellowish tinge on the inner web of the innermost secondaries near the scapulars, a feature that *G. dorsalis* has in common with *G. simplex* and *G. heteroclitus*.

GEOFFROYUS CYANICOLLIS (S. Müll.).

Geoffroyus cyanicollis cyanicollis Rothsch. & Hartert, l. c.; Hart. op. cit. x. p. 46 (1903).

GEOFFROYUS OBIENSIS (Finsch).

Geoffroyus cyanicollis obiensis Rothsch. & Hartert, op. cit. viii. p. 86 (1901).

According to Rothschild and Hartert, this species is confined to the Obi group, while specimens from Batchian belong to *G. cyanicollis,* which "sometimes has the same brown-red rump which seems to be a constant character of *G. obiensis.*" According to these ornithologists, in the Obi bird "the light nape-band is in both sexes wider than in the birds from Halmahera, Batjan, and Morty, the greenish-blue colour of the nape-band extending nearly or quite up to the hind margin of the eye, while in typical *cyanicollis* it is widely separated from the eye. The lilac-blue crown of the male of *G. obiensis,* as well as the brownish-blue one of the *female,* never extends on to the occiput, while in typical *cyanicollis* it occurs in the occiput and reaches the nape."

GEOFFROYUS HETEROCLITUS (H. & J.); Rothsch. & Hartert, Nov. Zool. viii. pp. 86, 188, 378 (1901); ix. p. 588 (1902); xii. p. 254 (1905) (Rendova, New Georgia, Gizo, Choiseul, Bougainville).

GEOFFROYUS SIMPLEX (Meyer); Rothsch. & Hartert, op. cit. viii. p. 86 (1901).

It still remains to be decided whether the specimens from Eastern New Guinea are the same as those from the Berau Peninsula.

PRIONITURUS Wagl.

PRIONITURUS PLATURUS Temm.; Hartert, Nov. Zool. iii. p. 150 (1896); Meyer & Wigl. Birds of Celebes, i. p. 133 (1898).

Prioniturus platurus platurus Hartert, Nov. Zool. v. p. 89 (1898).

Dr. Meyer and Mr. Wiglesworth have pointed out some slight differences which appear on comparing specimens from the following localities: Mainland of Celebes, Peling and Banggai Islands, Eastern Peninsula of Celebes, Lembeh Island, Talaut Islands, Sangi and Siao. The Talaut form has been named by Dr. Hartert.

The specimen from Buru, mentioned by Schlegel, has turned out to belong to a distinct species.

PRIONITURUS TALAUTENSIS Hartert; Sharpe, Hand-list, ii. p. 29, n. 2 (1900).

Prioniturus platurus talautensis Hartert, Nov. Zool. v. p. 89 (1898) (Talaut I.).

"The mantle and wings of the Talaut birds are very much lighter and more greyish green than in *P. platurus platurus*, and the wing is from 5 to 10 mm. shorter. The orange patch across the mantle is not more orange than in most Celebes skins; but in most, though not all, Talaut males the lilac-bluish spot on the nape is paler." (*Hartert.*)

Hab. Talaut Islands.

PRIONITURUS MADA Hartert.

Eclectus platyurus, part., Schleg. Mus. P.-B. iii. Psittaci, Revue, p. 22 (female from the Bay of Bara) (1874).

Prioniturus mada Hartert, Nov. Zool. vii. p. 230 (Buru) (1900).

Immature male. "Green, feathers of nape with greyish-blue edges, interscapulium mixed with bluish grey, lower back greyish blue, feathers of rump bordered with greyish blue. Lesser upper wing-coverts and broad line on inner band of wing to below the scapulars of a somewhat ashy blue. Under surface of a much lighter green, sides of chest darker and washed with blue; under wing-coverts washed with blue near the margin; larger under tail-coverts bright yellow, not yellowish green. Wing 175 mm., lateral rectrices 97, bill from gape 22, tarsus 15." (*Hartert.*)

The adult male is not yet known; a young female is in the Leyden Museum.

PRIONITURUS FLAVICANS Cass.; Sharpe, Ibis, 1894, p. 248; Ogilvie-Grant, Ibis, 1895, p. 466; Meyer & Wigl. Abh. Mus. Dresd. 1895, n. 8, p. 5; iid. B. of Celebes, i. p. 138 (1898).

PRIONITURUS VERTICALIS Sharpe, Bull. B. O. C. iii. p. x (Tawi-Tawi, Bongao, and Sibutu, Sooloo Is.) (1893); id. Ibis, 1894, p. 248, pl. vi.; id. Hand-list, ii. p. 29, n. 4 (1900); McGr. & Worc. Bureau of Gov. Lab. [Philippines] no. 36, p. 48 (1906).

"*P.* similis *P. flavicanti*, sed macula verticali scarlatina nec coccinea, pileo argentescenti-cyaneo nec cæruleo, et gastræo flavicanti-viridi distinguendus. Long. tot. 13·0 poll., alæ 7·2, caud. 3·4, rectr. med. 5·8.

"Closely allied to the Celebean form *P. flavicans*. It has the sides of the neck and hind-neck paler than the rest of the back, but merely of a yellowish-green colour instead of the golden olive, or, as Salvadori calls it, the 'olive-brown' colour of the hind-neck, which, in *P. flavicans*, is also found extending across the fore-neck and chest. *P. verticalis* has the under surface of the body entirely yellowish, washed with green. The crown of the head is of a silvery cobalt, extending over the nape, and in the centre of the crown is a scarlet spot. In *P. flavicans* the crown is darker, the blue is of a lilac tint, and only extends to the occiput, while the median spot is crimson.

"The *female* differs from the male in being emerald-green all over, and wanting the verditer-blue on the head as well as the scarlet spot on the latter.

"*Hab.* Sooloo Islands: Tawi-Tawi, Bongao, and Sibutu." (*Sharpe.*)

Prioniturus montanus Whitehead, MS.; Ogilvie-Grant, Bull. B. O. C. iv. p. xli (N. Luzon) (1895); id. Ibis, 1895, p. 466; Sharpe, Hand-list, ii. p. 29, n. 5 (1900); McGregor, Bull. Philipp. Mus. no. 3, p. 10 (1904); McGreg. & Worc. Bureau of Gov. Lab. no. 36, p. 48 (1906).

"*Adult male.* Back of the head and nape dark grass-green, only slightly brighter than the back and rest of the upper parts, the blue tips to the feathers of the forehead and crown darker [than in *P. verticalis*], commencing at the base of the bill and extending over the lores, sides of the head, and cheeks; under-parts dull grass-green, with scarcely a trace of yellow, so characteristic of the Sibutu bird.

"*Adult female.* Differs from the female of *P. verticalis* in having the head dull grass-green, the forehead, lores, sides of the crown, and feathers round the eyes being washed with blue. The under-parts are like those of the male and never yellow-green as in the Sibutu female. 'Eyes stone-grey, bill and feet whitish lead-grey' (*Whitehead*).

"Total length 12·2 inches, wing 6·4, tail 5·2, tarsus 0·65." (*Grant.*)

Similar to *P. verticalis* Sharpe, from the Sulu Archipelago, but the hind part of the crown and nape deep grass-green, scarcely brighter than the rest of the upper parts; cheeks and sides of the head blue. Total length 12·4 inches; wing 6·3; tarsus 0·65.

Hab. Mountains of Lepanto in Northern Luzon.

Prioniturus discurus (Vieill.); Ogilvie-Grant, Ibis, 1895, p. 263; 1896, p 560; 1897, p. 248; Sharpe, Hand-list, ii. p. 29, n. 6 (1900); McGreg. & Worcest. Bureau of Gov. Lab. no. 36, p. 49 (1906); Ogilvie-Grant, Ibis, 1906, p. 494.

PRIONITURUS SULUENSIS W. Blas.; Sharpe, Hand-list, ii. p. 29, n. 7 (1900).

Mr. Worcester makes *P. suluensis* a synonym of *P. discurus*, stating that "a careful examination of the specimens obtained by Bourns and himself in Sulu failed to disclose any differences between them and typical *P. discurus*."

PRIONITURUS WATERSTRADTI Rothsch. Bull. B. O. C. xiv. pp. 71, 72 (S. Mindanao) (1904); Ogilvie-Grant, Bull. B. O. C. xvi. p. 19 (1905); McGreg. & Worcest. Bureau of Gov. Lab. no. 36, p. 49 (1906); Ogilvie-Grant, Ibis, 1906, p. 465 (Mt. Apo, 8000 ft.).

"The brownish rump, less amount of blue on the forehead, and smaller size distinguish this bird easily from *Prioniturus discurus*." (*Rothschild.*)

Hab. Mount Apo, South Mindanao, 3000 feet.

Rothschild supposes that the allied *P. discurus*, which occurs also on Mindanao, lives at lower altitudes.

PRIONITURUS MINDORENSIS Steere; Hartert, Nov. Zool. ii. p. 487 (1895); Sharpe, Hand-list, ii. p. 29, n. 8 (1900); McGregor, Bureau of Gov. Lab. no. 34, p. 19 (1905); McGreg. & Worcest. op. cit. no. 36, p. 49 (1906).

PRIONITURUS CYANEICEPS Sharpe; id. Hand-list, ii. p. 29, n. 9 (1900); McGreg. & Worcest. Bureau of Gov. Lab. no. 36, p. 49 (1906) (Balabac, Palawan, Calamianes).

PRIONITURUS LUCONENSIS Steere; Sharpe, Hand-list, ii. p. 29, n. 10 (1906); McGreg. & Worcest. Bureau of Gov. Lab. no. 36, p. 49 (1906) (Luzon, Marinduque).

TANYGNATHUS Wagl.

TANYGNATHUS GRAMINEUS (Gm.); Hartert, Nov. Zool. vii. p. 230 (1900).

Rothschild's collectors have not met with this species in Buru; it is evidently is a rare bird.

TANYGNATHUS LUCONENSIS (Linn.).

Tanygnathus luconensis Ogilvie-Grant, Ibis, 1896, p. 561; 1897, p. 248 (Samar and Leyte); Meyer & Wigl. B. of

Celebes, i. p. 144 (1898) (Sangi, *Fisher* ?); McGreg. Bureau of Gov. Lab. no. 34, p. 12 (1905) (Mindoro).

Tanygnathus lucionensis McGreg. & Worcest. Bureau of Gov. Lab. no. 36, p. 49 (1906); Ogilvie-Grant, Ibis, 1906, p. 494 (Davao and Piso, Mindanao).

TANYGNATHUS SALVADORII Grant.

Tanygnathus luzoniensis Everett, Ibis, 1888, p. 282 (Mantanani Isl.); id. Journ. Str. Br. R. As. Soc. 1889, p. 176 (part., Mantanani Isl.).

Tanygnathus luconensis, part., Salvad. Cat. B. xx. pp. 424–426, specim. *w*, *x* (1891).

Tanygnathus salvadorii Ogilvie-Grant, Ibis, 1896, p. 562 (Mantanani I.); Sharpe, Hand-list, ii. p. 30, n. 3 (1900).

Mr. Ogilvie-Grant says:—“A male and a female collected by Mr. A. H. Everett on the island of Mantanani are determined by Count Salvadori (*cf.* Cat. B. Brit. Mus. xx. p. 424) as immature examples of *T. luconensis*; but I think this is a mistake, for both the examples in question have the blue on the top of the head extending from the back of the forehead to the nape, which leaves no doubt in my mind that they are adult birds; they resemble immature examples of *T. luconensis* in having the shoulders green instead of black, and all the feathers of the inner and median wing-coverts green margined with orange-yellow. Total length 12·5–12·2 inches, wing 7·3–7·15, tail 4·7–4·8, tarsus 0·75–0·7.”

Hab. Mantanani Islands.

TANYGNATHUS TALAUTENSIS Meyer & Wiglesworth.

Tanygnathus luzonensis Meyer et Wigl. (nec Linn.) Journ. f. Orn. 1894, p. 239 (Talaut I.).

Tanygnathus talautensis Meyer et Wigl. Abh. Mus. Dresd. 1894–95, no. 9, p. 2 (Talaut I.); iid. B. of Celebes, i. p. 145 (1898); Hartert, Nov. Zool. v. p. 88 (1898); Sharpe, Hand-list, ii. p. 30, n. 8 (1900).

Similar to *T. luconensis* (L.), but larger, with crown, nape, and ear-coverts blue, this colour sharply defined on the hind-neck. Wing 202–222 mm., tail 119–142, bill from cere 33·5–39.

Hab. Talaut Islands: Kabruang, Karkellang, and Esang.

According to the describers, probably only a subspecies, connected with the Philippine bird through the Sulu Islands form, which also is decidedly larger than the Philippine form (*cf.* Cat. B. xx. p. 426).

TANYGNATHUS MEGALORHYNCHUS (Bodd.); Meyer & Wigl. B. of Celebes, i. p. 146 (1898); Hartert, Nov. Zool. iii. p. 176 (1896) (Djampea); v. pp. 44 (Flores), 89 (1898) (Linong, Talaut group, typical); Rothsch. & Hartert, Nov. Zool. viii. p. 86 (1901); Hartert, op. cit. x. p. 45 (1903) (Batjan).

Tanygnathus megalorhynchos megalorhynchos Hartert, Nov. Zool. x. p. 23 (1903).

The distribution of this species as restricted by Dr. Hartert is, according to him, as follows:—"It extends from N.W. New Guinea over the western Papuan Islands to the northern Moluccas, to Flores, Djampea between Celebes and Flores, and the islands north of Celebes—not only to Talaut, Sangi, Siao, but even to the small islands close to the coast: Mantehage, Biarro, and Tagulandang."

As to the specimens from Djampea and Flores, with the wings outwardly green, hardly with any blue tinge at all and perhaps a shade darker green, Dr. Hartert says that perhaps they should receive a a special name.

According to Meyer and Wiglesworth, specimens from Djampea are intermediate between *T. megalorhynchus* and *T. sumbensis*.

TANYGNATHUS SUMBENSIS Meyer.

Tanygnathus megalorhynchus, part., Salvad. Cat. B. xx. pp. 426, 428 (note) (1891).

Tanygnathus megalorhynchus sumbensis Hartert, Nov. Zool. iii. p. 588 (Sumba) (1896); Meyer & Wigl. B. of Celebes, i. p. 148 (1898); Hartert, Nov. Zool. x. p. 23 (1903).

I have stated (*l. c.*) that two specimens from Sumba, examined by me, did not shew any differences from typical *T. megalorhynchus*.

Dr. Meyer and Mr. Wiglesworth and also Dr. Hartert insist on the slight differences pointed out by Dr. Meyer. Dr. Hartert says:—"It is of the same size as typical *T. megalorhynchus*, and has outwardly blue quills, but the under wing-coverts are greenish yellow [not deep yellow] and under surface greener and darker. It is a very distinct race."

TANYGNATHUS VIRIDIPENNIS Hartert.

Tanygnathus megalorhynchus viridipennis Hartert, Nov. Zool. x. p. 22 (Tukang Besi) (1903).

"*Tanygnathus T. megalorhyncho* typico simillimus, sed remigibus extus viridibus, minime cæruleis, rostro alisque minoribus."

Wing 230 to 245 mm., while in typical *T. megalorhynchus* it is 240 to 266. Iris pale yellow.

Hab. in Insulis Tukang-Besi.

TANYGNATHUS AFFINIS Wall.; Hartert, Nov. Zool. vii. p. 230 (1900) (Kayeli).

TANYGNATHUS SUBAFFINIS Sclat.; Finsch, Not. Leyd. Mus. xxii. p. 290 (Babber).

Tanygnathus megalorhynchos subaffinis Hartert, Nov. Zool. xiii. p. 294 (1906) (Babber).

TANYGNATHUS MUËLLERI (Temm.).

Tanygnathus muelleri Büttik. Zool. Erg. Weber's Reise Ost-Ind. iii. p. 273 (1893); Meyer & Wigl. Abh. Mus. Dresd. 1895, no. 8, p. 5; 1896, no. 2, p. 8; Hartert, Nov. Zool. ii. p. 160 (1896); Meyer & Wigl. B. of Celebes, i. p. 140 (1898).

TANYGNATHUS SANGIRENSIS Meyer & Wiglesworth; Sharpe, Hand-list, ii. p. 30, n. 9 (1900).

Eclectus muelleri, part., Schleg. N. T. D. iii. p. 185 (1865).

Tanygnathus muelleri, part., Wald. Tr. Z. S. viii. p. 31 (1872); Salvad. Ann. Mus. Civ. Gen. ix. p. 53 (Sanghir) (1876); Rchnw. Journ. f. Orn. 1881, p. 245 (Consp. Psitt. p. 133); Meyer, Isis, 1885, p. 6; W. Blas. Ornis, 1888,

p. 556; Hickson, Natural. in Celebes, p. 155 (1889); Salvad. Cat. B. xx. p. 431, specim. *k* imm. (1891).

Tanygnathus muelleri sangirensis Meyer et Wigl. Journ. f. Orn. 1894, p. 113 (Sanghir I.), p. 239 (Talaut I.); iid. Abh. Mus. Dresd. 1894–95, p. 2 (Talaut I.); Hartert, Nov. Zool. v. p. 89 (1898) (Lirung); Meyer & Wigl. B. of Celebes, i. p. 142 (1898).

"*Tanygnathus T. muelleri* (M. et Schl.) ex insula Celebes similis, sed major et juvenis capite cærulescenti distinguendus. Long. al. 235, caud. 145, culm. a cer. 35·5, tars. 25 mm."

Hab. Sanghir Islands and Talaut Islands.

In the 'Catalogue of Birds' I have already pointed out that a Sanghir bird differed from the Celebean examples. Specimens from Talaut Islands are somewhat smaller than those from the Sanghir Islands (*Meyer and Wiglesworth*).

TANYGNATHUS EVERETTI Tweedd.; McGreg. & Worcest. Bureau of Gov. Lab. no. 36, p. 49 (1906) (Luzon, Mindanao, Mindoro, Negros, Panay, Samar).

TANYGNATHUS BURBIDGEI Sharpe; McGreg. & Worcest. Bureau of Gov. Lab. no. 36, p. 49 (1906) (Bongao, Sulu, Tawi-Tawi).

PALÆORNIS Vig.

PALÆORNIS EUPATRIA (Linn.); Blanf. Faun. of B. Ind., Birds, iii. p. 247 (1895).

PALÆORNIS NEPALENSIS Hodgs.; Blanf. t. c. p. 248.

PALÆORNIS INDOBURMANICA Hume; Blanf. t. c. p. 248.

PALÆORNIS MAGNIROSTRIS Ball; Blanf. t. c. p. 249; Richmond, Pr. U. S. Nat. Mus. xxv. p. 303 (1902) (Andaman).

PALÆORNIS TORQUATA (Bodd.); Blanf. t. c. p. 250.

PALÆORNIS DOCILIS (Vieill.); Salvad. Ann. Mus. Civ. Gen. (2) xx. p. 32 (1901) (Forim).

Palæornis cubicularis (Hasselq.); Rchnw. Vög. Afr. ii. p. 24 (1902), iii. p. 822 (1905).

PALÆORNIS CYANOCEPHALA (Linn.); Blanf. Faun. of B. Ind., Birds, iii. p. 251 (1895).

PALÆORNIS ROSA (Bodd.); Blanf. t. c. p. 252.

PALÆORNIS SCHISTICEPS Hodgs.; Blanf. t. c. p. 253.

PALÆORNIS INTERMEDIA Rothsch. Nov. Zool. ii. p. 492 (India) (1895); Sharpe, Hand-list, ii. p. 31, n. 12 (1900).

" *Under-mandible* orange-yellow. *Maxilla* orange-crimson, with yellow tip. *Forehead* and orbital region rufous plum-purple; rest of head and cheeks slaty purple, not quite so dull as in *P. rosa.* Separating the head colour from the back is a narrow black collar joined to broad black mandibular stripes. This black collar is followed by an ill-defined band of bright verdigris-green. Back and scapulars oil-green; rump, wing, and upper tail-coverts more grass-green with a slight bluish tinge; a large maroon spot on the middle wing-coverts. Central tail-feathers missing; rest of tail as in *P. schisticeps,* but outer webs more blue. Whole *under surface* yellowish apple-green. *Under-wing-coverts* bright glaucous green; wings like those of the three allied species (?).

" Wing 6 inches, bill 0·8.

" *Hab.* India.

" The single skin now before me is of the so-called Bombay preparation, and therefore most likely came from the Western Provinces. With it came two skins of *P. schisticeps.*

" This species is somewhat intermediate between *Palæornis schisticeps* and *P. cyanocephala* in size and coloration, but is nearer *P. schisticeps,* with which it agrees in the colour of the *under mandible,* which is black in *P. cyanocephala* and *P. rosa.*" (*Rothschild.*)

A doubtful species, not improbably established on a hybrid!

PALÆORNIS FINSCHI Hume; Blanf. Faun. of B. Ind., Birds, iii. p. 254 (1895); Sclat. P. Z. S. 1902, p. 170 (specim. living in the Zool. Soc. Gardens).

PALÆORNIS COLUMBOIDES Vig.; Bourdillon, Journ. Bomb.

Soc. xv. p. 666 (1904) (nesting habits); Blanf. Faun. of B. Ind., Birds, iii. p. 255 (1895).

Palæornis peristerodes Finsch; Salvad. Cat. B. xx. p. 460 (1891); Sharpe, Hand-list, ii. p. 32, n. 15 (1900).

PALÆORNIS CALTHROPÆ Layard; Blanf. t. c. p. 256.

Palæornis calthorpæ Sharpe, Hand-list, ii. p. 32, n. 16 (1900).

PALÆORNIS DERBYANA Fras.; Rothsch. Bull. B. O. C. viii. p. lvi (1899).

Mr. Rothschild states that he has lately received two living females of this species, said to have come from Hainan. The description of the female is still wanting.

PALÆORNIS SALVADORII Oust.

Palæornis derbyanus Swinh. (nec Fraser), P. Z. S. 1873, p. 690 (Moupin); David et Oust. Ois. Chin. p. 1, pl. 1, (1877).

Palæornis derbyana, part., Salvad. Cat. B. xx. pp. 453, 454 (1891); ? Oustalet, in Bonvalot's De Paris au Tonkin, App. (1892).

Palæornis salvadorii Oust. Bull. Soc. Zool. Fr. xviii. p. 19 (Szechuen and Thibet) (1893); Ogilvie-Grant, Ibis, 1900, p. 600 (different from *P. derbyana*).

Palæornis derbyana salvadorii Rothsch. Bull. B. O. C. viii. p. lvi (1899).

Dr. Oustalet has not given a complete description of this species; he says that the upper parts are coloured as in *Palæornis derbyana,* while the under parts are differently coloured, being less rosy and more purple, especially in the males; the dimensions are smaller, total length 460 millimetres instead of 510.

Having seen specimens of this bird in the Paris Museum, I may add that the under wing-coverts are *green* in *P. salvadorii,* while they are *vinous* in *P. derbyana,* approaching in that respect *P. fasciata.*

Hab. Szechuen and Thibet.

Mr. Rothschild would only give subspecific rank to

P. salvadorii, while Mr. Ogilvie-Grant, speaking of a fine male collected in Yunnan by Capt. Wingate, declares that *P. salvadorii* is a perfectly distinct species. He says:—"Among other distinctive characters of *P. salvadorii* may be mentioned the red upper mandible*, the purple-blue of the underparts, uniform in colour with the crown, and the absence of the pale brownish-buff band bordering the hinder part of the head and cheeks, so distinctly shown in the figures given by Fraser, P. Z. S. 1850, pl. 25, and in Gould's 'Birds of Asia,' vi. pl. 9 (1858)."

PALÆORNIS FASCIATA (P. L. S. Müll.); Blanf. Faun. of B. Ind., Birds, iii. p. 256 (1895); Ogilvie-Grant, Ibis, 1900, p. 599 (S.W. Yunnan).

Palæornis fasciatus Richm. Pr. U. S. Nat. Mus. xxv. p. 303 (1902) (Andamans); xxvi. p. 495 (1903) (Simalur).

Simalur (Babi, Simalu, or Si Malu of some maps) is an island on the west coast of Sumatra. Nine specimens were obtained, agreeing in size with Andaman birds (*Richmond*).

PALÆORNIS MAJOR Richm. Pr. Biol. Soc. Wash. xv. p. 188 (Pulo-Babi) (1902); id. Pr. U. S. Nat. Mus. xxvi. p. 495 (1903).

"Identical in colour with *P. fasciatus,* but much larger. Length (in the flesh) 438 mm.; wing 192; tail 230; tarsus 18; culmen 18." (*Richmond.*)

Hab. Pulo Babi and Pulo Lasia, off the west coast of Sumatra.

Mr. Richmond mentions seven specimens of this new species. Strangely enough, Pulo Babi and Pulo Lasia lie fourteen miles south-east of Simalur, where typical *P. fasciata* was found.

PALÆORNIS CANICEPS Blyth; Blanf. Faun. of B. Ind., Birds, iii. p. 258 (1895); Richm. Pr. U. S. Nat. Mus. xxv. p. 303 (1902) (Great and Little Nicobar).

PALÆORNIS MODESTA Fras.; Salvad. Ann. Mus. Civ. Gen. (2) xii. p. 127 (1892) (Engano).

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* The bill is entirely black in the type of *P. derbyana.*

PALÆORNIS NICOBARICA Gould; Richm. Pr. U. S. Nat. Mus. xxv. p. 303 (1902) (Nicobars).

Palæornis erythrogenys Blyth; Blanf. Faun. of B. Ind., Birds, iii. p. 258 (1895).

PALÆORNIS TYTLERI Hume; Blanf. t. c. p. 258; Richm. Pr. U. S. Nat. Mus. xxv. p. 304 (1902) (Lawrence Island and South Andaman).

PALÆORNIS LONGICAUDA (Bodd.); Hartert, Nov. Zool. ix. p. 196 (1902).

PALÆORNIS ALEXANDRI (Linn.); Hartert, op. cit. iii. p. 552 (1896) (Bali): Bartels, Nat. Tijdschr. Ned. Ind. lxi. p. 137 (1902); id. Journ. f. Orn. 1906, p. 512.

SPATHOPTERUS North.

Type.

Spathopterus, North, Ibis, 1895, p. 339 (woodcut of the primaries) .... *S. alexandræ.*

The generic character for separating *Spathopterus* from *Polytelis* consists in the third primary "singularly elongated and terminating in a spatule."

SPATHOPTERUS ALEXANDRÆ (Gould); North, Ibis, 1895, p. 340; id. Rep. Horn Sc. Exp. to Centr. Austr., part ii. Aves, p. 60, pl. v. (1896); Sharpe, Hand-list, ii. p. 33 (1900); Keartland, Victorian Naturalist, xxii. p. 83 (1905).

Polytelis alexandræ Hurst, Emu, iii. p. 115 (1903); Astley, Avicultural Magazine, n. s., iii. p. 248 (1905).

Polytelis (*Spathopterus*) *alexandræ* Keartland, Emu, v. p. 89 (1905).

This species, discovered in the north of Australia, has been found breeding in South Australia, and a Mr. Hunter has obtained it also in the West.

PTISTES Gould.

PTISTES COCCINEOPTERUS Gould; Le Souëf, Ibis, 1899, p. 360 (nest and eggs).

Ptistes erythropterus coccineopterus Hartert, Nov. Zool. xii. p. 212 (1905).

Considered distinct from *P. erythropterus* by Mr. Le Souëf, but according to Dr. Hartert very slightly different.

PTISTES JONQUILLACEUS (Vieill.); Hartert, Nov. Zool. v. p. 120 (1898) (Timor).

PTISTES WETTERENSIS Salvad.

Ptistes jonquillaceus, part., Finsch, Not. Leyd. Mus. xxii. p. 291 (Wetter only).

Ptistes jonquillaceus wetterensis Hartert, Nov. Zool. xi. p. 195 (1904).

APROSMICTUS Gould.

APROSMICTUS CYANOPYGIUS (Vieill.); Rob. & Lav. Ibis, 1900, p. 614 (Cairns); North, Rec. Austr. Mus. v. p. 265 (xanthochroic) (1904).

APROSMICTUS CHLOROPTERUS Rams.; Rothsch. & Hartert, Nov. Zool. viii. p. 87 (1901).

APROSMICTUS CALLOPTERUS D'Alb. & Salvad.; Rothsch. & Hartert, l. c. (Tana Mera, Takor, N. coast of New Guinea).

APROSMICTUS BURUENSIS Salvad.; Sharpe, Hand-list, ii. p. 33, n. 6 (1900).

Aprosmictus amboinensis buruensis Rothsch. & Hartert, Nov. Zool. vii. p. 230 (1900) (Kajeli and Mount Mada).

APROSMICTUS DORSALIS (Q. & G.); Rothsch. & Hartert, op. cit. viii. p. 87 (1901) (Kapaur).

APROSMICTUS SULAENSIS Rchnw.; Meyer & Wigl. Abh. Mus. Dresd. 1896, no. 2, p. 8; iid. B. of Celebes, p. 170 (1898).

PSITTACELLA Schleg.*

PSITTACELLA BREHMI (Rosenb.); Hartert, Nov. Zool. iii. p. 18 (1896).

Psittacella brehmi typica Hartert, Ibis, 1897, p. 60.

Psittacella brehmi brehmi Rothsch. & Hartert, Nov. Zool. viii. p. 87 (1901).

PSITTACELLA PALLIDA Meyer.

Psittacella sp., De Vis, Report, p. 1, sp. 9 (1894).

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* *Cf.* Hartert, "On the Genus *Psittacella*" ('Ibis,' 1897, pp. 58–60, pl. iii.).

Psittacella brehmi, part., Salvad. Cat. B. xx. p. 498 (1891); id. Ann. Mus. Civ. Gen. (2) xvi. p. 62 (Moroka) (1896).

Psittacella brehmi pallida Hartert, Nov. Zool. iii. pp. 18, 255, 532 (1896); id. Ibis, 1897, pp. 58–60; Rothsch. & Hartert, Nov. Zool. viii. p. 87 (1901).

Dr. Hartert insists on considering the slight differences existing between the South-eastern and Arfak specimens as subspecific; according to me the slightly more greyish hue of the olive throat, the slightly paler cheeks, and the more yellowish colour of the green under-parts are not sufficient to separate the birds of the two localities. As to the bluish-green tinge of the tips of the rectrices underneath, pointed out by Mr. de Vis, I have already remarked that it is to be found also in northern birds, and seems to be apparent only in old birds.

Psittacella picta Rothsch. Bull. B. O. C. vol. vi. p. v (Mt. Victoria) (1896); Hartert, Nov. Zool. iii. p. 533 (1896); id. Ibis, 1897, p. 59, pl. iii.; Rothsch. Ibis, 1897, p. 112; Rothsch. & Hartert, Nov. Zool. viii. p. 87 (1901).

Male. Crown chestnut-rufous, sides of the head greyish brown; an orange-yellow collar on the hind-neck; sides of the neck with a chestnut-rufous spot (?). Above green; lower rump and upper tail-coverts deep red; back and rump with black cross-bars; wings blackish, outer webs of quills green, the primaries with yellow edges towards the tips; throat and breast blue; under tail-coverts red; rest of under parts green; a blue tinge along the middle of the abdomen; under wing-coverts green, bend of wing bluish. Wing 112 mm., tail 70, culmen 15.

Female. No orange-yellow collar, cross-bars above more numerous; breast yellowish, with broad black cross-bands; abdomen with indistinct yellowish and dusky cross-bars. Otherwise like the male (*Rothschild*).

The *young male* resembles the old female, but the head is not brownish red, but brown with greenish edges to the feathers (*Rothsch. & Hartert*).

Hab. Mount Victoria, in the Owen Stanley Range, British New Guinea, at elevations of from 5000 to 7000 feet, and also on Mt. Knutsford (11,000 feet).

The plate in 'The Ibis' gives a very good idea of this bird.

PSITTACELLA MODESTA (Schl.); Hartert, Ibis, 1897, p. 60.

PSITTACELLA MADARASZI Meyer; Hartert, l. c.; Rothsch. Nov. Zool. v. p. 511 (1898).

Psittacella madarani (lapsu) Rothsch. & Hartert, op. cit. viii. p. 87 (1901).

PSITTINUS Blyth.

PSITTINUS INCERTUS (Shaw).

Psittinus malaccensis (Lath.); Hartert, Nov. Zool. ix. pp. 196, 542 (1902) (Pehang, E. Malay Peninsula).

Latham's name *Psittacus malaccensis*, according to me, cannot be used, as there was already a *Psittacus malaccensis* (Gm.).

PSITTINUS ABBOTTI Richm. Pr. Biol. Soc. Wash. xv. p. 188 (1902) (Simular Isl., west coast of Sumatra); id. Pr. U. S. Nat. Mus. xxvi. p. 496 (1903).

"This species is conspicuously unlike the only previously known member of the genus, *P. incertus*, differing in having the mantle, rump, upper tail-coverts and lower surface green, a brighter blue head, a greenish patch on the crown, and a black band across the nape. It is also considerably larger than the common species.

"The female is duller in colour, has no blue on the head (which is like the mantle), and no black band on the nape." (*Richmond.*)

Wing of the males 130–144 mm., of the females 134–141 mm.

Hab. Simular Island, off the west coast of Sumatra.

BOLBOPSITTACUS Salvad.

BOLBOPSITTACUS LUNULATUS (Scop.); McGreg. & Worcest. Bureau of Gov. Lab. no. 36, p. 49 (1906) (Luzon).

BOLBOPSITTACUS INTERMEDIUS Salvad.

Bolbopsittacus intermedius Bourns & Worcester, Occ. Pap. Minnes. Ac. Sc. i. no. 1, pp. 36, 50 (Samar) (1894); Ogilvie-Grant, Ibis, 1897, p. 248 (Samar and Leyte); McGreg. & Worcest. Bureau of Gov. Lab. no. 36, p. 49 (1906) (Leyte, Samar).

Female. "It differs from the male in having the blue of the head confined to the throat, the cheeks being light green; around the eye a ring of green lighter than that of crown; the blue collar is replaced by an indistinct collar of faint orange-yellow; rump only slightly lighter than back, and green, not yellow as in the male; under surface slightly lighter and more yellowish; thighs green instead of yellow."

Young male. "Is like the female, but has less blue on sides of throat." (*Bourns & Worcester.*)

Hab. Samar and Leyte.

The female and the exact locality were unknown before Messrs. Bourns and Worcester made them known.

BOLBOPSITTACUS MINDANENSIS (Steere); Ogilvie-Grant, Bull. B.O.C. xvi. pp. 17, 36 (1905); id. Ibis, 1906, p. 494; McGreg. & Worcest. Bureau of Gov. Lab. no. 36, p. 49 (1906).

By an oversight Mr. Grant has redescribed this species as new.

AGAPORNIS Selby.

AGAPORNIS MADAGASCARIENSIS (Bodd.); Richm. Pr. U. S. Nat. Mus. xix. p. 685 (1897).

Agapornis cana (Gm.); Salvad. Cat. B. xx. p. 507 (1891).

Agapornis canus Rchnw. Vög. Afr. ii. p. 19 (note) (1902).

AGAPORNIS TARANTA (Stanl.); Shell. B. Afr. i. p. 140 (1896); Salvad. Boll. Mus. Tor. xii. no. 287, p. 1 (1897); Rchnw. Vög. Afr. ii. p. 20 (1902).

AGAPORNIS PULLARIA (Linn.); Boc. Jorn. Lisb. (2) no. vi. p. 77 (1891); Emin, Journ. f. Orn. 1891, pp. 342, 344, 345; Rchnw. Journ. f. Orn. 1892, p. 21; Sharpe, Ibis, 1892, p. 312; Porter, Avicult. Mag. (2) ii. pp. 350–352 (1904) (breeding in confinement); Rchnw. Vög. D. O.-Afr. p. 100 (1894) (Insel

Ikuru, in Victoria Nyansa); id. Journ. f. Orn. 1894, p. 31; 1896, p. 8; 1897, pp. 13, 53; Shell. B. Afr. i. p. 141 (1896); Neum. Journ. f. Orn. 1899, p. 63; Rchnw. Vög. Afr. ii. p. 21 (1902); Sharpe, Ibis, 1902, p. 109 (Entebbe); Jackson, t. c. p. 613; Salvad. Mem. Ac. Tor. (2) liii. pp. 11, 35 (San Thomé), p. 119 (1903).

Agapornis fischeri Rchnw.; Emin, Journ. f. Orn. 1891, pp. 338, 339, 342; Rchnw. Vög. D. O.-Afr. p. 100; Shell. B. Afr. i. p. 141 (1896); Neum. Journ. f. Orn. 1899, p. 63; Rchnw. Vög. Afr. ii. p. 23 (1902) (Ussuri, Katima, Bussissi, Karuma, Muansa).

Agapornis personata Rchnw.; Emin, Journ. f. Orn. 1891, pp. 59, 342; Rchnw. t. c. p. 144; id. Vög. D. O.-Afr. p. 10 (1894); Shell. B. Afr. i. p. 141 (1896); Neum. Journ. f. Orn. 1899, p. 63; Rchnw. Vög. Afr. ii. p. 23 (1902).

Hab. German East Africa.

Herr Neumann informs us that this species was erroneously mentioned (Journ. f. Orn. 1882, pp. 40, 55, 326; Cat. B. xx. p. 512) as from Serian, on the Victoria Nyanza.

Agapornis nigrigenis W. L. Sclat. B. O. C. xvi. p. 61 (1906).

General colour green, tinged with olive on the hinder half of the head and neck, brighter on the [upper] tail-coverts; front half of the crown and forehead sienna-brown; sides of the face, including the ear-coverts and throat, black; quills dusky, washed with bluish green on the outer webs; tail dark green, all but the middle pair of feathers with a red stripe along the shaft and a subterminal dusky spot; under surface green, slightly lighter than the back and with a patch of salmon-red on the lower throat. Bill rosy-red, paler, almost white, at the base; legs brown (in skin). Length (in skin) 6·25 inches, wing 3·6, tail 1·6, culmen ·62, tarsus ·50.

The female has the front of the head dusky rather than sienna-brown, and this colour does not extend so far back as in the case of the original specimen.

Hab. Mugnazi River, North-west Rhodesia.

AGAPORNIS ROSEICOLLIS (Vieill.); Fleck, Journ. f. Orn. 1894, pp. 372, 395 (S.W. Africa); Kush. op. cit. 1895, p. 98 (egg); Shell. B. Afr. i. p. 141 (1896); Rchnw. Vög. Afr. ii. p. 19 (1902).

AGAPORNIS LILIANÆ Shelley.

Agapornis roseicollis Kirk (nec Vieill.), Ibis, 1864, p. 329 (Shiré, between Nyassa and the rapids).

Agapornis lilianæ Shell. Ibis, 1894, p. 466, pl. xii. (Upper Shiré); id. B. Afr. i. p. 141, no. 1930 (1896); Sharpe, Hand-list, ii. p. 35, no. 5 (1900); Alex. Ibis, 1900, pp. 431, 432; Shell. Ibis, 1901, p. 176; Rchnw. Vög. Afr. ii. p. 22 (1902).

Head and throat brick-red, inclining to vermilion towards the forehead, with the back of the head and hinder neck greenish yellow; remainder of the plumage bright grass-green, slightly paler and yellower on the under parts; inner webs of the quills dark brown; tail with a blackish sub-terminal band and a scarlet basal patch on all but the central feathers. Bill rosy red, fading into white at the base of the upper mandible. Total length 5·3 inches, culmen 0·75, wing 2·7, tail 1·8, tarsus 0·55.

Female. Similar.

Hab. Upper Shiré, Nyasaland (*White*).

Easily distinguished from *A. roseicollis* by having no blue whatever on the rump and upper tail-coverts, which are green, like the back.

AGAPORNIS SWINDERENIANA (Kuhl).

Psittacula swinderniana Büttik. Reisebild. Liberia, App. p. 475 (1890).

Agapornis swinderenianus Rchnw. Vög. Afr. ii. p. 19 (1902).

AGAPORNIS ZENKERI Rchnw.

Agapornis, ♂, Emin, P. Z. S. 1894, p. 599.

? *Agapornis swinderniana* Emin, l. c.

Agapornis zenkeri Rchnw. Orn. Monatsb. iii. p. 112 (Cameroon) (1895); id. Journ. f. Orn. 1896, p. 8, Taf. ii.

fig. 1; Shell. B. Afr. i. p. 141 (1896); Sharpe, Hand-list, ii. p. 35, n. 9 (1900); Rchnw. Vög. Afr. ii. p. 19 (1902).

"*A. swindereniana* simillima, sed fascia cervicali aurantio-rubra nec olivacea; iugulo dilute aurantio-flavescente distinguenda; iride flava; pedibus virescentibus; rostro corneo." (*Reichenow.*)

Hab. Jaunde in Cameroon.

Loriculus Blyth.

Loriculus vernalis (Sparrm.); Richm. Pr. U. S. Nat. Mus. xxv. p. 304 (1902) (Nicobars).

Loriculus pusillus (Gray); Bartels, Nat. Tijdschr. Ned. Ind. lxi. p. 138 (1902); id. Journ. f. Orn. 1906, p. 512.

Loriculus exilis Schleg.; Meyer & Wigl. Abh. Mus. Dresd. 1896, no. 1, p. 4; iid. B. of Celebes, i. p. 149 (1898).

Loriculus chrysonotus Sclat.; McGreg. & Worcest. Bureau of Gov. Lab. no. 36, p. 50 (1906) (Cebu).

Loriculus regulus Souancé; McGreg. & Worcest. Bureau of Gov. Lab. no. 36, p. 50 (1906) (Guimaras, Masbate, Negros, Panay, Ticao).

Loriculus bournsi McGreg. Bureau of Gov. Lab. no. 25, p. 16 (1905); McGreg. & Worcest. op. cit. no. 36, p. 50 (1906) (Romblon, Libuyan, Tablas).

"Related to *L. regulus*, but male distinguished by the smaller orange crown-patch and weaker nuchal band. I am inclined to think that the red breast-patch averages smaller in *L. bournsi*; but I do not care to offer this as a reliable character. The female is indistinguishable from the female of *L. regulus*."

Hab. Romblon, Libuyan, Tablas.

Loriculus philippensis (P. L. S. Müll.); McGreg. & Worcest. Bureau of Gov. Lab. no. 36, p. 50 (1906) (Catanduanes, Luzon, Marinduque).

Loriculus mindorensis Steere; Hartert, Nov. Zool. ii. p. 487 (1895); McGreg. Bureau of Gov. Lab. no. 34, p. 12

(1905); McGreg. & Worcest. Bureau of Gov. Lab. no. 36, p. 50 (1906) (Mindoro).

Loriculus siquijorensis Steere; McGreg. & Worcest. Bureau of Gov. Lab. no. 36, p. 50 (1906) (Siquijor).

Loriculus indicus (Gm.); Blanf. Fauna of Brit. Ind., Birds, iii. p. 262 (1895).

Loriculus apicalis Souancé; McGreg. & Worcest. Bureau of Gov. Lab. no. 36, p. 50 (1906) (Basilan, Bazol, Dinigat, Mindanao); Ogilvie-Grant, Ibis, 1906, p. 463 (Mt. Apo).

Loriculus worcesteri Steere.

Loriculus hartlaubi Tweedd. P. Z. S. 1878, p. 340 (Amparo, S. Leyte) (nec 1873); id. Orn. Works, p. 595 (Amparo) (1881); Wardl. Rams., Tweedd. Orn. Works, p. 655 (part., Leyte) (1881).

Loriculus worcesteri Steere, List B. & M. Steere Exped. p. 6 (Samar, Leyte) (1890); Bourns & Worcest. Occ. Pap. Minnes. Acad. Sc. i. no. 1, p. 50 (Samar, Leyte) (1894); Ogilvie-Grant, Ibis, 1897, p. 249; Sharpe, Hand-list, ii. p. 36, n. 12 (1900); McGreg. & Worcest. Bureau of Gov. Lab. p. 50 (1906).

Loriculus apicalis, part., Salvad. Cat. B. xx. pp. 528, 529 specim. *d, e, f–l* (1891).

Messrs. Bourns and Worcester insist on the specific distinction of *L. worcesteri* from *L. apicalis* as follows:—

"*First*, the red mark on crown of Samar birds is *distinctly narrower* than in those from Mindanao, and *tapers sharply to a point* on the nape, instead of spreading out and *ending broadly*.

"*Secondly*, the feathers of the back are *barely tinged* with golden, not one of our specimens showing anything like the amount of colour exhibited by Mindanao birds."

Hab. Samar and Leyte.

Loriculus bonapartei Souancé; McGreg. & Worcest. Bureau of Gov. Lab. no. 36, p. 50 (1906) (Bongao, Sulu, Tawi-Tawi).

Loriculus galgulus (Linn.); Hartert, Nov. Zool. ix.

pp. 196, 542 (1902); Richm. Pr. U. S. Nat. Mus. xxvi. p. 496 (1903) (Pulo Tuanku).

Loriculus sclateri Wall.; Meyer & Wigl. Abh. Mus. Dresd. 1896, no. 2, p. 9; iid. B. of Celebes, i. p. 153 (1898).

Loriculus ruber Meyer & Wigl.; Sharpe, Hand-list, ii. p. 36, n. 17 (1900).

Loriculus sclateri ruber Meyer & Wigl. Abh. Mus. Dresd. 1896, no. 2, p. 9; iid. B. of Celebes, i. p. 154 (1898).

Similar to *L. sclateri*, but upper back scarlet and forehead conspicuously red. Wing 90 mm., tail 40, tarsus 12·5, culmen from cere 11·5.

Hab. Peling and Banggai Islands, between Sula Islands and North-eastern Celebes.

Loriculus quadricolor Wald.; Meyer & Wigl. B. of Celebes, i. p. 157 (1898).

Loriculus stigmatus (M. & S.); Meyer, Vogelskel. pt. 18, p. 44, t. clxx. (1892); Büttik. Z. Erg. Weber's Reise Ost-Ind. iii. p. 273 (1893); Meyer & Wigl. Abh. Mus. Dresd. 1895, no. 8, p. 6; 1896, no. 1, p. 7, no. 2, p. 9; Hartert, Nov. Zool. iii. p. 160 (1896), iv. p. 165 (1897); Meyer & Wigl. B. of Celebes, i. p. 158 (1898).

Loriculus amabilis Wall.; Hartert, Nov. Zool. x. p. 46 (1903).

Loriculus catamene Schleg.; Meyer & Wigl. B. of Celebes, i. p. 151 (1898).

Loriculus meeki Hartert.

Loriculus aurantiifrons Sharpe (nec Schleg.), Journ. Linn. Soc., Zool. xvi. p. 426 (Milne Bay) (1882); Salvad. Orn. Pap. e Mol. iii. p. 516 (Milne Bay) (1883); id. Cat. B. x. p. 538 (part., S.E. Guinea) (1890).

Loriculus aurantiifrons meeki Hartert, Nov. Zool. ii. p. 62 (Fergusson I.) (1895), iii. p. 245 (1896); Rothsch. & Hartert, Nov. Zool. p. 88 (1891).

Loriculus meeki Sharpe, Hand-list, ii. p. 37, n. 23 (1900).

Similar to *L. aurantiifrons*, but larger—wing 2·8–2·9 inches, instead of 2·52–2·7,—and the females shew no trace of red on the base of the feathers of the forehead: "iris white" (*Meek*).

Hab. Fergusson Island and S.E. New Guinea.

The above-mentioned characters, already pointed out by me as distinguishing the S.E. New Guinea birds, have been deemed sufficient by Mr. Hartert to separate them as belonging to a subspecies.

[To be continued.]

VI.—*On the Birds of the Island of Formosa.*

By W. R. Ogilvie-Grant and J. D. D. La Touche.

(Plates III. & IV.)

The present paper, which, so far as we are aware, contains a complete list of all the species of Birds known to occur on the Island of Formosa, is based on a remarkable collection made by the well-known traveller and naturalist, Mr. Walter Goodfellow, on Mount Morrison and some of the neighbouring peaks of Central Formosa, during the months of January, February, and March 1906.

On finding that Mr. J. D. D. La Touche, who has visited and made collections of birds in both the north and south of Formosa, was also engaged in preparing a list of the birds known to occur on that island, I suggested that we should combine our work, and to this he kindly assented.

A long letter received from Mr. Goodfellow with the collection contains such an excellent account of his adventurous journey that I feel that I cannot do better than repeat the story in his own words. He writes:—" I am not very satisfied with the Formosan collection. Formosa is the most difficult country to collect in that I have yet visited and the *most* uninteresting. No one can imagine the difficulties one has to put up with, and I should never have been able to get into the interior at all, had it not been for your letters of introduction. The Japanese allow no one into the savage territory, but the truth is that no one could go there without an escort. Last year there was a great deal of fighting and a number of Japanese were killed by the savages. Now they have drawn a cordon of police-outposts and alarm-stations round the whole of the mountainous interior from one end of the island to the other, and have shut off the savages from raiding the Chinese villages along the foothills, and wherever camphor is collected on the outlying hills they have also established police-stations.

"I evidently went to Formosa at the wrong time of the year, but I am still in doubt as to which season would be the best for the mountains. In the South, possibly from November to the beginning of January, and again perhaps from the middle of March to the end of April. Even then one would be sure to encounter much bad weather. English missionaries, who have lived there for thirty years or more, tell me that for months at a time in the summer the mountains are quite invisible, and this is certainly the case during the winter. January and February are quite out of the question, for the weather is then extremely severe and the snows come down very low. The summer (S.W. monsoon) is the wet season, and I could see that certain trails and ravines I ascended would be quite impossible at that season, and even the savages informed me that it was then very difficult to get about. I started from Tainan (formerly Taiwanfu) in the first week of January, and went about forty-five miles up the line by train to Daksui. From there I went a ten or twelve mile trolley-journey to Rinkiho (Chinese: Lim-ki-po). All the places have two names, Japanese and Chinese. Thence I started on foot to the last Chinese village, Ghi-ou-rog, twenty-two miles distant. The next day's journey took me eighteen miles into the mountains, to the first savage village of Nama-ka-bang, at an elevation of about 2500 feet. The fourth day I arrived at Tompo (a second savage village, belonging to a different tribe), not a long journey, but a very difficult one; and the fifth day from Tompo to Racu Racu, the highest inhabited village, near to Mt. Morrison, was also a short but frightfully difficult journey. On the sixth day I made a very long and fatiguing journey from Racu Racu to a spot on Mt. Morrison at an elevation of 9000 ft. There we were practically on the range which is called Mt. Morrison, and formed a camp down in the ravine, just over the slope which forms the foreground in the photograph I enclose (text-fig. 7, p. 154). We rested here one day, and on the seventh day started, before daylight, for the summit, returning to camp the same night. Had we not ascended the mountain on that day we should not have been able to do so, for the next day winter-weather set in, with rain and snow, which came down lower and lower until we were snowed and frozen out of our camp. We stayed at this camp ten or twelve days. Here I got the Fire-crested Wrens (*Regulus goodfellowi* Grant) and the few other birds which are labelled 'Mt. Morrison, 9000 ft.' Birds were very scarce, and it was possible to go a whole day without so much as seeing or hearing one. Higher than this, in ascending the mountain, I saw no sign of bird-life whatever. On the grassy slopes seen in the photograph at 9000 ft. (text-fig. 7, p. 154) I shot the first of the three brown Finches (*Carpodacus incertus* Grant). It seemed really a waste of time to remain up here, for I was not adding to the collection at the rate of even a bird a day. Besides, as it had been snowing for two days, the savages would not stay longer with us, and had much more snow fallen we should not have been able to persuade them to return and carry down our baggage. So we struck our camp and went down to the highest village of Racu Racu at about 6000 ft. On our way there I met with a bad accident. A different tribe of savages to those who were with us had set a trap in our trail and, as I was leading, I got one spear right into my instep and another wound on the upper side of the foot. On account of the quantity of water we were continually obliged to cross and the slippery nature of the rocks, I was wearing light shoes with woven string soles, and the spear went right through the canvas and deep into the instep. The consequence was I was laid up for nearly three weeks without being able to put my foot to the ground. During this time I employed various Japanese policemen to shoot birds for me, but they were either bad shots or did not like climbing about the steep mountains; they also wasted too much ammunition, and almost invariably brought in only the commonest birds, which were too much knocked about to skin, so that I was obliged to give them up. I had thus twelve policemen, who formed my escort, doing nothing.

Text-fig. 7.

Summit of Mount Morrison, 13,880 ft.

When I could get about again, I found Racu Racu was not a bad place for birds, but it was disappointing to find that a great number of the lowland species were met with there in spite of the cold, for the snow had followed us down and was lying on the mountains a little above the village.

"You will see that the Barbet (*Cyanops nuchalis* Swinh.) was fairly numerous at Racu Racu, and even at 8000 ft. where there was snow. I had hoped that the severe weather might drive all the birds down to us from the highlands, and probably to some extent it did so, for many of the birds I found at Racu Racu might not be obtainable there in the summer, but it brought none of those species down that I had obtained at our highest camp, between 9000 and 10,000 ft. After apparently exhausting the avifauna of Racu Racu, I was determined, in spite of bad weather, to go up higher once more, and we camped out in a ravine near the S.W. front of Mt. Morrison between 8000 and 9000 ft. We had a fine day for our ascent, but it rained all night, and during the eight days that I remained there I was only able to go out collecting once, for about three hours. A thick, wet fog prevailed the whole of the time, and this obscured everything, so that for a day at a time it was impossible to see a yard in front of one. Wearied out with nothing to do in this gloom and with everything wet through, we were glad to get away and went from there to the Ho Ho Mountain, two days' journey further west. We had one week of beautiful weather, succeeded by ten days of rain and fog; thus ten more days were wasted. During the rest of my stay we had alternate days of wet and fine. The same kind of weather prevailed on Kiew-kong-chin, but with rather a larger proportion of wet days, which were always accompanied by thick fog. On looking at my diary I see that on more than half of the days of the three months I spent in the mountains it was impossible to do any collecting on account of the weather.

"I fully expected to find a Crossbill and a Bullfinch in the higher pine-forests, but I saw nothing resembling either of them. The savages know every bird up there and have names for them all, so I drew a head of a Crossbill and asked them if they had ever seen any bird like that, but they said no. Still there may be both Crossbills and Bullfinches on some of the other mountains. There was only one highland bird of which I did not obtain a specimen, and that was a Dipper (*Cinclus marila* Swinh.). It was a black bird with apparently a brown head and no white or other marking about it whatever. I saw it at 9000 ft. in a torrent-bed on Mt. Morrison. I hope the Jay may prove to be new. When I shot the first Pheasant I really thought I had found a new species, but of course it was Swinhoe's. It was disappointing to find it so high up. You will see two feathers from the tail of another Pheasant, which is doubtless new (*Calophasis mikado* Grant). It was only on the day we were leaving the mountains that I found these in the head-dress of a savage who had come to carry our baggage. He said he had killed it on Mount Arizan and that it was rare. From enquiries I have made, I believe Arizan would be a much better collecting-ground than Mt. Morrison. It is nearly as high (over 13,000 ft.), more of a single mountain, I believe, and covered with fine forests. I could never see the mountain, but it was not far from where we were. Had I gone there it would have necessitated refitting, which would have been an expensive undertaking, as I had to feed all the police and two interpreters (Japanese and savage), as well as the large number of savages required to carry the needful baggage.

"I just escaped the big earthquakes in Formosa, for I arrived in Kagi from the mountains the day afterwards, and many people were killed where I had spent the previous night, at Rinkiho. The shocks continued, several a day, until I left the island."

Though Mr. Goodfellow states that he is dissatisfied with the collection that he made, he has really no reason to be so, as will be seen by those who read the following pages. To have discovered ten new species of birds is sufficiently satisfactory, and when we consider how remarkable some of these species are and the great difficulties with which he had to contend, I think that our readers will congratulate him very heartily on the successful results of his journey.

The great majority of the birds collected represent forms peculiar to Formosa, and the following is a list of the novelties he obtained:—*Xanthopygia affinis, Ianthia johnstoniæ, Suthora morrisoniana, Actinodura morrisoniana, Trochalopterum morrisonianum, Proparus formosanus, Yuhina brunneiceps, Regulus goodfellowi, Carpodacus incertus,* and *Calophasis mikado.*

Several other species, such as *Microcichla scouleri, Ægithalus concinnus, Anorthura fumigata,* and *Cryptolopha fulvifacies,* were observed for the first time in Formosa.

So far as is at present known, the following families of Passeres are not represented in Formosa:—*Nectariniidæ, Dicæidæ, Certhiidæ, Artamidæ,* and *Eurylæmidæ*; while among the Picarian groups no representatives have been discovered of the *Bucerotidæ, Meropidæ, Coraciidæ, Podargidæ,* and *Psittacidæ.* Representatives of some of these families may and probably do occur, but the list is worthy of special attention, now that our knowledge of the highland avifauna of Formosa is more complete, for in many respects the Avifauna of the Himalaya is similar to that of the mountains of Formosa.

The following is a list of the principal papers and memoirs dealing with the ornithology of Formosa:—

R. Swinhoe, Journal N. China Branch Royal Asiatic Society. Shanghai. No. ii. pp. 145–164, 228–230 (1859).
„ Ibis, 1860, pp. 357–361.
J. Gould, P. Z. S. 1862, pp. 280–286.
R. Swinhoe, Ibis, 1863, pp. 198–219, 250–311, 377–435.
„ Ibis, 1864, pp. 361–370, 424–429.
„ Ibis, 1865, pp. 353–359, 538–546.
„ Ibis, 1866, pp. 129–138, 292–316, 392–406.
D. G. Elliot, P. Z. S. 1870, p. 406.
R. Swinhoe, P. Z. S. 1871, pp. 337–423.
H. J. Elwes, P. Z. S. 1873, pp. 666–667.
R. Swinhoe, Ibis, 1877, pp. 473–474.
F. W. Styan, Ibis, 1893, p. 470.
H. Seebohm, Ibis, 1895, pp. 211–213.
J. D. D. La Touche, Ibis, 1895, pp. 305–338.
„ „ Ibis, 1898, pp. 356–373.
J. Gould, Birds of Asia (1850–1883).
Catalogue of the Birds in the British Museum (1874–1898).
A. David & E. Oustalet, Oiseaux de la Chine (1877).

The best and most modern work on the island is:—

James Davidson, 'The Island of Formosa, Past and Present.' 646 pp., App. I.–IV., and Map. (1903.)

Appendix II. of this work contains a list of the land-birds of Formosa, prepared by Mr. J. D. D. La Touche, but, as the author never had an opportunity of correcting the proofs and the list contains many printer's errors, we have refrained from referring to it in our synonymy.

The names of all the species of birds of which specimens were procured by Mr. Goodfellow are marked with an asterisk (*). Those obtained by Swinhoe and other Collectors, and of which specimens are to be found in the British Museum or Liverpool Museum (Tristram Collection), are marked with a dagger (†). Some few species, which bear no mark, are included on the authority of Swinhoe, but of these no specimens have been examined, and possibly none were collected by him.

The following is a list of the localities visited by Mr. Goodfellow during his three-months' trip to Mount Morrison and the neighbouring peaks:—

Tainan (= Taiwanfu).
Daksui, on the railway, 45 miles north of Tainan.
Rinkiho (= Lim-ki-po), east of Daksui.
Ghi-ou-rog. Last Chinese village, 22 miles from Rinkiho.
Nama-ka-bang. First savage village: alt. 2500 ft.
Tompo. Second savage village.
Racu Racu. Highest inhabited village near Mount Morrison: alt. 7000 ft.
Mount Morrison. Camp at 9000 ft. (whence Mr. Goodfellow ascended to the summit, given as 13,880 ft.).
Mount Ho Ho. Two days' journey west of Mount Morrison.
Mount Kiu-Kong-Chin. A neighbouring peak.

[W. R. O.-G.]

CORVIDÆ.

1. †CORVUS MACRORHYNCHUS Wagl.

Corvus sinensis Gould; Swinh. Ibis, 1863, p. 383.
Corvus colonorum Swinh. Ibis, 1864, p. 427.
Corvus macrorhynchus La Touche, Ibis, 1898, p. 370.

This Crow is resident in North Formosa, but uncommon. It was once observed by Swinhoe on the plains of South Formosa.

2. †Pica pica (L.).

Pica media Blyth; Swinh. Ibis, 1863, p. 383; id. P. Z. S. 1871, p. 382.

Pica caudata Keys. u. Blas.; La Touche, Ibis, 1895, p. 335.

The Magpie is resident on the plains of the south-west, but is almost unknown in the north of Formosa.

3. *Urocissa cærulea Gould.

Urocissa cærulea Gould, P. Z. S. 1862, p. 282; Swinh. Ibis, 1863, p. 384; Gould, B. Asia, v. pl. 46 (1864); Sharpe, Cat. Birds B. M. iii. p. 74 (1877); La Touche, Ibis, 1898, p. 370.

a. ♀. Racu Racu Mts., 6000 ft., Jan. 1906.
b, c. ♂ ♀. Ho Ho Mt., 5000 ft., March 1906.

Iris yellow; bill and feet coral-red.

The measurements of these specimens, which are all adult shew considerable variation:—

♂. Wing 8·2; tail 15·3 inches.
♀. „ 7·9; „ 16·6 „
♀. „ 7·4; „ 14·4 „

This Blue Magpie is peculiar to Formosa, where it is resident in the mountains of the interior.

4. *Dendrocitta formosæ Swinh.

Dendrocitta sinensis var. *formosæ* Swinh. Ibis, 1863, p. 387.

Dendrocitta formosæ Swinh. P. Z. S. 1871, p. 382; La Touche, Ibis, 1895, pp. 320, 321–323, 336; 1898, p. 370.

a–e. ♂ ♀. Ho Ho Mt., 5000 ft., Feb., March 1906.
f. ♀. Kiu-Kong-Chin Mt., 5000 ft., March 1906.

Iris dark brown; bill and feet black.

This Tree-Pie is peculiar to the island and resident in the wooded mountains throughout the interior.

Swinhoe originally described this bird as a variety of *D. sinensis* Lath., and stated that the differences were too trifling to warrant its specific separation. It is, however, easily recognised by having the basal half of the middle tail-feathers grey and the belly white.

5. *GARRULUS TAIVANUS Gould.

Garrulus taivanus Gould, P. Z. S. 1862, p. 282; Swinh. Ibis, 1863, p. 386; Gould, B. Asia, v. pl. 58 (1864).

Garrulus insularis Swinh. P. Z. S. 1863, p. 304.

a. ♂. Mt. Morrison, 8000 ft., Jan. 1906.

b, c. ♀. Racu Racu Mts., 7000 ft., Jan., Feb. 1906.

Iris brown; bill pale slate-coloured at the base, shading into black at the tip; feet yellowish flesh-coloured.

The Formosan Jay is peculiar to the island, where it is resident in the mountains of the interior.

STURNIDÆ.

6. †ACRIDOTHERES CRISTATELLUS (L.).

Acridotheres cristatellus Swinh. Ibis, 1863, p. 382; Sharpe, Cat. Birds B. M. xiii. p. 92 (1890); La Touche, Ibis, 1895, p. 335; 1898, p. 369.

The Crested Myna is resident on the plains, but is very rare in North Formosa.

7. †SPODIOPSAR CINERACEUS (Temm.).

Sturnus cineraceus Swinh. Ibis, 1863, p. 382.

Poliopsar cineraceus Sharpe, Cat. Birds B. M. xiii. p. 41 (1890).

Spodiopsar cineraceus La Touche, Ibis, 1898, p. 369.

The Grey Starling winters on the plains.

8. †STURNIA SINENSIS (Gmel.).

Heterornis sinensis Swinh. Ibis, 1863, p. 382.

Temenuchus sinensis Swinh. Ibis, 1866, p. 394.

Sturnia sinensis Sharpe, Cat. Birds B. M. xiii. p. 68 (1890); La Touche, Ibis, 1895, p. 335.

Mr. La Touche shot the Chinese Myna on the plains of S.W. Formosa in mid-November. Swinhoe states ('Ibis,' 1866, p. 394) that it winters on the island. It is probably a resident species in the south.

DICRURIDÆ.

9. *CHAPTIA BRAUNIANA Swinh.

Chaptia brauniana Swinh. Ibis, 1863, p. 269.

a, b. ♂ ♀. Racu Racu Mts., 6000 ft., Jan. 1906.

c. ♀. Ho Ho Mt., 5000 ft., March 1906.

Iris dark brownish red ; bill and feet black.

The Bronzed Drongo is resident in the mountains of the interior. It appears to be merely a slightly larger race of the Himalayan *C. ænea* (Vieill.), with which it should probably be united.

10. †BUCHANGA ATRA (Herm.).

Dicrurus macrocercus Vieill. ; Swinh. Ibis, 1863, p. 266.

Dicrurus cathœcus Swinh. P. Z. S. 1871, p. 377.

Buchanga atra Sharpe, Cat. Birds B. M. iii. p. 246 (1877): La Touche, Ibis, 1895, pp. 306, 334; 1898, p. 366.

The Black Drongo is resident throughout the lower hills and plains of Formosa.

ORIOLIDÆ.

11. †ORIOLUS INDICUS Jerd.

Oriolus chinensis; Swinh. (nec L.) Ibis, 1863, p. 291.

Oriolus diffusus Sharpe, Cat. Birds B. M. iii. p. 197 (1877) ; La Touche, Ibis, 1895, pp. 324, 328, 333; 1898, p. 366.

This Oriole is resident on the plains and lower hills of South Formosa, and visits the north of the island during the summer.

12. *ORIOLUS ARDENS (Swinh.).

Psarophulus ardens Swinh. Ibis, 1862, p. 363, pl. xiii. ; 1863, p. 293; 1866, p. 398; Gould, B. Asia, ii. pl. 75 (1871).

a–c. ♂. Ho Ho Mt., 5000 ft., Feb., March 1906.

d–g. ♂ ♀. Kiu-Kong-Chin Mt., 5000 ft., March 1906.

Iris cream-coloured ; bill pale grey; feet pale bluish grey.

This beautiful crimson Oriole is peculiar to Formosa, and is met with in the mountains throughout the island.

PLOCEIDÆ.

13. *UROLONCHA ACUTICAUDA (Hodgs.).

Munia acuticauda Swinh. Ibis, 1863, p. 379; id. P. Z. S. 1871, p. 385; La Touche, Ibis, 1895, p. 335; 1898, p. 369.

Uroloncha acuticauda Sharpe, Cat. Birds B. M. xiii. p. 356 (1890).

Uroloncha squamicollis Sharpe, Cat. Birds B. M. xiii. p. 359 (1890) (part.).

a. ♀. Racu Racu Mts., 6000 ft., Feb. 1906.

This small Munia is resident all over the lower hills and plains of Formosa.

Dr. Sharpe has separated specimens of this Weaver-Finch from China, Formosa, and Hainan under the name of *U. squamicollis*, but it appears to us that the Formosan and Hainan birds differ from the light rufous-chested form met with in China and should rather be placed with *U. acuticauda* (Hodgs.), typical specimens of which some of the Formosan birds closely resemble. It must, however, be remarked that the majority of our Formosan examples have the chest-feathers rufous-brown with pale edges, but these parts are much darker than in Chinese specimens. These birds are, moreover, quite similar to specimens of so-called *U. acuticauda* from Tenasserim and Siam, which seem to belong to a form intermediate between *U. acuticauda* and *U. squamicollis*. The subject, however, requires more time and attention than we can at present bestow on it.

14. †MUNIA TOPELA Swinh.

Munia topela Swinh. Ibis, 1863, p. 380; Sharpe, Cat. Birds B. M. xiii. p. 351 (1890); La Touche, Ibis, 1895, p. 335; 1898, p. 369.

Swinhoe's Munia is resident all over the lower hills and plains of Formosa.

15. †MUNIA FORMOSANA Swinhoe.

Munia formosana Swinh. Ibis, 1865, p. 356; Sharpe, Cat. Birds B. M. xiii. p. 338 (1890); La Touche, Ibis, 1895, p. 335.

The Formosan Munia has been obtained on the lower hills of South Formosa, and was observed by Mr. La Touche in the neighbourhood of Banksa. It was believed to be peculiar to Formosa, but according to Messrs. Macgregor and Worcester it has been taken in Luzon, Philippine Islands [*cf.* Hand-list of the Birds of the Philippine Isl. p. 105 (1906)].

FRINGILLIDÆ.

16. EOPHONA MIGRATORIA Hartert.

Coccothraustes melanurus La Touche (nec Gmel.), Ibis, 1898, p. 368.

Eophona melanura migratoria Hartert, Vög. Pal. Faun. pt. i. p. 59 (1903).

A straggler of this Grosbeak was seen by Mr. La Touche at Tamsui, N. Formosa, on the 16th of April.

17. CHLORIS SINICA (Linn.).

Fringilla sinica Swinh. Ibis, 1863, p. 378.

Chloris sinica Sharpe, Cat. Birds B. M. xii. p. 26 (1888).

According to Swinhoe this Greenfinch is "a resident species, somewhat rare" in Formosa. There is no example in the British Museum from that locality, and Swinhoe's specimens, if he ever preserved any, are not included in either the Seebohm or Tristram Collections.

18. †PASSER MONTANUS (Linn.).

Passer montanus Swinh. Ibis, 1863, p. 378; La Touche, Ibis, 1895, p. 335; 1898, p. 368.

The Tree-Sparrow occurs on the lowlands, generally in inhabited districts.

19. †PASSER RUTILANS Temm.

Passer russatus Temm. & Schl.; Swinh. Ibis, 1863, p. 378.

Passer rutilans Swinh. P. Z. S. 1871, p. 386; Sharpe, Cat. Birds B. M. xii. p. 329 (1888).

According to Swinhoe this Sparrow inhabits the hilly parts of Formosa.

20. *CARPODACUS INCERTUS Grant.

Carpodacus incertus Grant, Bull. B. O. C. xvi. p. 122 (1906).

a. ♀. Mt. Morrison, 8000 ft., Jan. 1906. (*Type of the species.*)

b, c. ♀ et ♂ imm. Mt. Morrison, 8000 ft., Jan. 1906.

Adult female. Closely allied to the female of *C. edwardsi* Verr., from N. India and Western China, but differs in having a smaller bill; no pale spotted feathers on the forehead; no very well-marked pale buff superciliary stripe; darker brownish buff under-parts, similarly coloured under tail-coverts, and both with dark shaft-stripes. Total length ca. 5·7 inches, wing 3·0, tail 2·55, tarsus 0·9.

The only male of this species procured by Mr. Goodfellow is an immature bird in brown plumage similar to that of the female.

The fully adult male is probably rose-coloured as in *C. edwardsi*; it is to be hoped that we shall soon receive adult examples.

21. †EMBERIZA SPODOCEPHALA Pall.

Emberiza spodocephala Swinh. Ibis, 1863, p. 377; La Touche, op. cit. 1895, p. 335; 1898, p. 368.

The Black-faced Bunting is a very common winter visitant throughout Formosa.

22. †EMBERIZA SULPHURATA Temm. & Schleg.

Emberiza sulphurata Swinh. Ibis, 1863, p. 378; Sharpe, Cat. Birds B. M. xii. p. 519 (1888).

Siebold's Bunting is a winter visitant, but, according to Swinhoe, it is by no means so common as the last.

23. EMBERIZA AUREOLA Pall.

Emberiza aureola Swinh. Ibis, 1863, p. 378.

Swinhoe reports the Yellow-breasted Bunting as a winter visitant to Formosa, but not common. He does not appear to have collected any specimens.

24. EMBERIZA FUCATA Pall.

Emberiza fucata Swinh. Ibis, 1863, p. 378.

Swinhoe records the Grey-headed Bunting as a winter visitant to Formosa, but not common. There are no Formosan specimens in the British Museum.

25. EMBERIZA CIOIDES Brandt.

Emberiza cioides Swinh. Ibis, 1863, p. 378.

Swinhoe says that the Siberian Meadow-Bunting is a winter visitant to Formosa, but not common. The form referred to is probably the so-called *E. castaneiceps* Moore, but the British Museum contains no examples from Formosa. We cannot see any reasonable grounds for separating *E. castaneiceps* from typical *E. cioides*, as the characters given are not constant [*cf.* Hartert, Vög. Pal. Faun. pt. ii. p. 186 (1904)].

ALAUDIDÆ.

26. †ALAUDA SALA Swinh.

Alauda cœlivox Swinh. Ibis, 1863, p. 377 (part.).

Alauda sala, Swinh. op. cit. 1870, p. 354; La Touche, op. cit. 1898, p. 368.

This Lark is resident in North Formosa.

27. †ALAUDA WATTERSI Swinh.

Alauda cœlivox Swinh. Ibis, 1863, p. 377 (part.).

Alauda wattersi Swinh. P. Z. S. 1871, p. 389; La Touche, Ibis, 1895, pp. 318, 327, 335.

This form of Lark is resident in South Formosa and in the Pescadores.

MOTACILLIDÆ.

28. *MOTACILLA LEUCOPSIS Gould.

Motacilla luzoniensis; Swinh. (nec Scop.) Ibis, 1863, p. 308.

Motacilla leucopsis Oates, Faun. Brit. Ind., Birds, ii. p. 288 (1890); La Touche, Ibis, 1895, p. 332; 1898, p. 364.

a–c. ♂ ♀. Racu Racu torrents, 6000 ft., Feb. 1906.

Iris dark brown; bill and feet black.

The White-faced Wagtail is resident throughout Formosa. Three adult examples in incipient summer-plumage have the entire chest of a very deep black colour.

29. †MOTACILLA OCULARIS Swinh.

Motacilla ocularis Swinh. Ibis, 1863, p. 309; Tristram, Cat. Coll. B. p. 170 (1889): La Touche, Ibis, 1898, p. 364.

The Streak-eyed Wagtail is a winter visitant to North Formosa. Swinhoe found it breeding on the island.

30. †MOTACILLA LUGENS Pall.

Motacilla lugubris Swinh. Ibis, 1863, p. 308.

Motacilla lugens? La Touche, op. cit. 1895, p. 332.

Swinhoe states that he procured an example of this Wagtail in South Formosa in March after a heavy gale. Specimens were subsequently collected by Holst in March and June, 1894. The bird obtained in June is a young female, so probably the species occasionally breeds in Formosa.

31. †MOTACILLA MELANOPE Pall.

Motacilla boarula: Swinh. (nec Linn.) Ibis, 1863, p. 309.

Calobates melanope Swinh. P. Z. S. 1871, p. 364.

Motacilla melanope La Touche, Ibis, 1895, p. 332; 1898, p. 364.

According to Swinhoe, the Grey Wagtail is a common resident in Formosa.

32. †MOTACILLA TAIVANA Swinh.

Budytes flava L. var. *rayi* Swinh. Ibis, 1863, p. 309.

Budytes taivanus Swinh. op. cit. 1866, p. 138; 1870, p. 346.

Motacilla taivana Sharpe, Cat. Birds B. M. x. p. 514 (1885); La Touche, Ibis, 1895, p. 332; 1898, p. 364.

The Eastern Yellow Wagtail is a constant resident in Formosa, resorting chiefly to the neighbourhood of the mountain-streams for the purpose of nidification.

33. *ANTHUS MACULATUS Hodgs.

Anthus agilis Swinh. (nec Sykes) Ibis, 1863, p. 310.

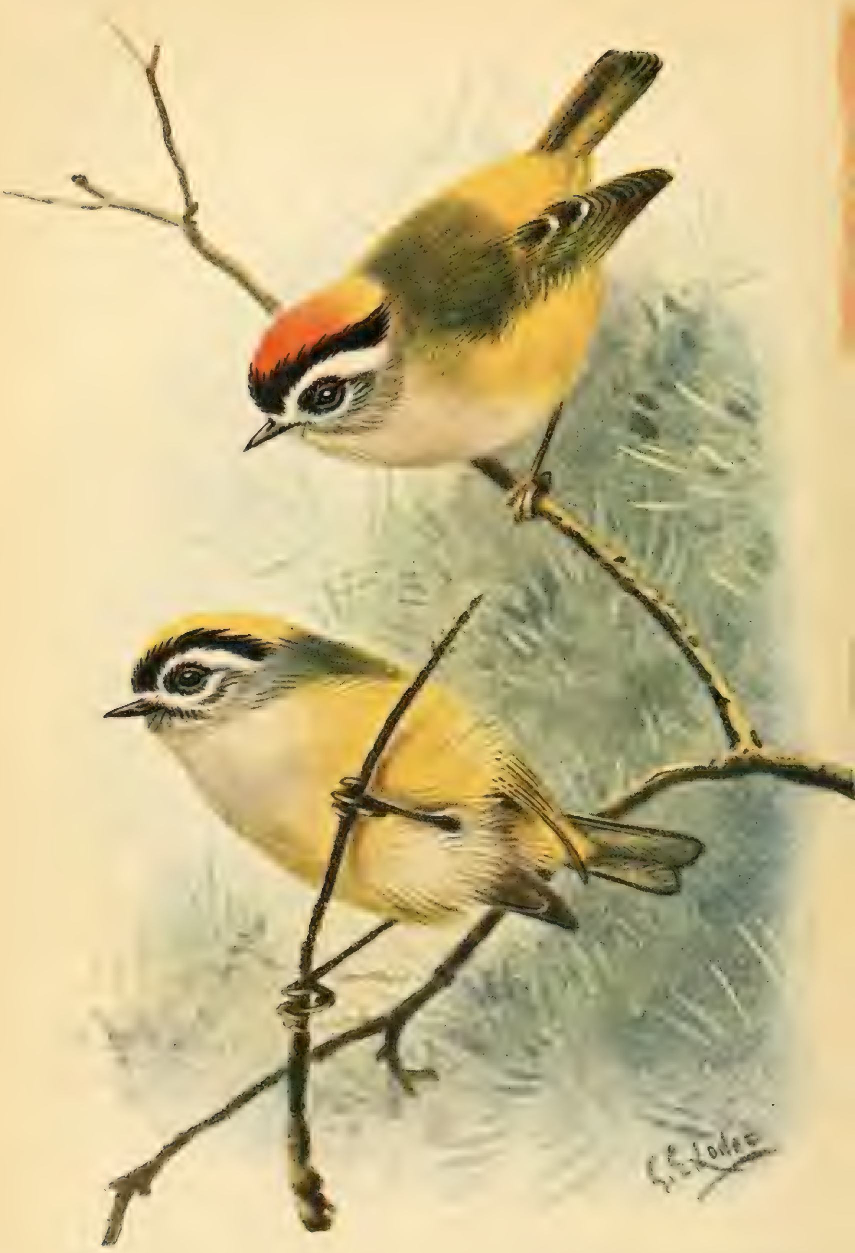
Anthus maculatus La Touche, op. cit. 1898, p. 364.

a. ♀. Racu Racu Mts., 6000 ft., Jan. 1906.

b. ♀. Ho Ho Mt., 5000 ft., Mar. 1906.

The Spotted Tree-Pipit is a winter visitant to Formosa.

Ibis. 1907. Pl. III.



G. E. LODGE, DEL.]

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REGULUS GOODFELLOWI, ♂ & ♀.

34. †ANTHUS CERVINUS (Pall.).

Anthus cervinus Swinh. Ibis, 1863, p. 311; La Touche, op. cit. 1895, p. 333; 1898, p. 364.

The Red-throated Pipit is a common winter visitant to Formosa, remaining there till the end of April or beginning of May.

35. †ANTHUS RICHARDI Vieill.

Anthus richardi Swinh. Ibis, 1863, p. 311; La Touche, op. cit. 1895, p. 333; 1898, p. 365.

Richard's Pipit is a winter visitant to North Formosa and probably also to the south of the island. Swinhoe considered it a very rare straggler. Four examples were collected by Mr. La Touche at Hobé, N. Formosa, and one of these is now in the British Museum.

ZOSTEROPIDÆ.

36. †ZOSTEROPS SIMPLEX Swinh.

Zosterops simplex Swinh. Ibis, 1863, p. 294; La Touche, op. cit. 1895, p. 314; 1898, p. 367.

This White-eye is resident throughout the lower hill-ranges and plains.

SITTIDÆ.

37. *SITTA SINENSIS Verr.

Sitta europæa sinensis Hellmayr, Das Tierreich, Sittidæ p. 179 (1903).

a. ♀. Racu Racu Mts., 7000 ft., Jan. 1906.

The single example of this Nuthatch obtained by Mr. Goodfellow agrees with typical Chinese specimens. The species had not been previously recorded from Formosa.

REGULIDÆ.

38. *REGULUS GOODFELLOWI Grant. (Plate III.)

Regulus goodfellowi Grant, Bull. B. O. C. xvi. p. 122 (1906).

a, b. ♂ ♀. Mt. Morrison, 9000–10,000 ft., Jan. 1906. (*Types of the species.*)

Adult male. Most nearly allied to the male of *R. igni-*

capillus, from which, however, it differs greatly in the more brilliant fiery orange-red of the crown, the more distinct black-and-white markings on the sides of the head, the canary-yellow lower back and rump, and the somewhat paler yellow sides of the breast, flanks, and under tail-coverts.

Total length ca. 3·5 inches; wing 2·1; tail 1·4; tarsus 0·8.

Adult female. Similar to the male, but with the middle of the crown of the same canary-yellow colour as the lower back.

Total length ca. 3·5 inches; wing 2·05; tail 1·48; tarsus 0·8.

This exquisite little Fire-crest is well represented in the accompanying plate by Mr. G. E. Lodge. It is a much finer species than any *Regulus* previously known.

PARIDÆ.

39. *MACHLOLOPHUS HOLSTI Seeb.

Parus holsti Seeb. Bull. B. O. C. vol. iv. p. vii (1894); id. Ibis, 1895, pp. 146, 211, pl. vi.

a–c. ♂ ♀. Racu Racu Mts., 6000 ft., Jan., Feb. 1906.

As will be remembered, a single male example of this remarkably fine Titmouse was procured by the late A. P. Holst on an outlying spur of Mount Morrison. In his description of the type, Seebohm omitted to mention the *black patch on the middle of the belly,* which it now appears is one of the characteristics of the male.

The female differs from the male in having a shorter crest, washed with dark olive on the sides; the upper parts dull greenish olive-grey (instead of glossy greenish black*), the blue tinge on the wings and tail less bright, and in lacking the black patch on the belly. Iris dark reddish brown; bill black; feet slate-coloured.

Male. Total length ca. 5·0 inches; wing 3·0–3·05; tail 2·1–2·2; tarsus 0·8–0·85.

Female. Total length ca. 4·8 inches; wing 2·8; tail 2·0; tarsus 0·78.

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* Described by Seebohm as "greenish metallic blue"!

40. *Parus insperatus Swinh.

Parus insperatus Swinh. Ibis, 1866, p. 308; La Touche, op. cit. 1895, pp. 322, 332.

Parus monticolus insperatus Hellmayr, Das Tierreich, Paridæ, p. 99 (1903).

a–e. ♂ ♀. Racu Racu Mts., 6000 ft., Jan., Feb. 1906.

Iris dark brown; bill black; feet bluish grey.

This insular form appears to differ slightly but constantly from typical *P. monticola* in its rather smaller size, in having the grey of the rump slightly paler and extending rather further up the back, the outer webs of the quills and tail-feathers of a rather brighter blue, and the white on the inner secondaries confined to the tip and not extending along the margin of the outer web; the two last-named characters are sometimes found in continental birds from China &c.

		Males.	Females.
P. insperatus ……	Wing	2·55–2·65	2·50–2·6
P. monticola ……	,,	2·65–2·8	2·55–2·8

41. †Parus castaneiventris Gould.

Parus castaneoventris Gould, P. Z. S. 1862, p. 280.

Parus castaneiventris Swinh. Ibis, 1863, p. 295.

Parus varius castaneoventris Hellmayr, Das Tierreich, Paridæ, p. 84 (1903).

Swinhoe states that this handsome Titmouse is entirely restricted to the interior mountain-chains of Formosa, where it is said to be by no means common.

42. *Ægithalus concinnus (Gould).

Psaltria concinna Gould, B. Asia, ii. pl. 65 (1855) [China].

Ægithalos concinnus Hellmayr, Das Tierreich, Paridæ, p. 122 (1903).

a–d. ♂ ♀. Racu Racu Mts., 6000 ft., Jan. 1906.

Iris cream-coloured.

The examples of this elegant Long-tailed Titmouse collected by Mr. Goodfellow differ in nowise from specimens from China and Hainan. It is the first time that this species has been recorded from Formosa.

LANIIDÆ.

43. †LANIUS SCHACH Linn.

Lanius schach var. *formosæ* Swinh. Ibis, 1863, p. 270.

Lanius schach Swinh. P. Z. S. 1871, p. 375; La Touche, Ibis, 1895, p. 334; 1898, p. 366.

The Chestnut-backed Shrike is resident on the lower hills and plains of Formosa.

44. †LANIUS LUCIONENSIS Linn.

Lanius lucionensis Swinh. Ibis, 1863, p. 272; 1866, p. 394; La Touche, op. cit. 1895, p. 334; 1898, p. 366.

The Luzon Shrike passes on migration in spring and autumn, and La Touche has seen it once or twice during the winter in North Formosa. Swinhoe observed this species late in December, and has stated ('Ibis,' 1866, p. 394) that it passes the winter on the island.

AMPELIDÆ.

45. AMPELIS JAPONICUS (Siebold).

Ampelis phœnicoptera (Temm.); Swinh. Ibis, 1864, p. 427; 1866, p. 307.

A female of the Japanese Waxwing shot at Tamsui on the 17th of April is recorded by Swinhoe, but we cannot trace what became of the specimen. As in Foh-kien, it is, no doubt, a scarce winter straggler.

SYLVIIDÆ.

46. ACROCEPHALUS ORIENTALIS (Temm. & Schl.).

Calamoherpe orientalis Swinh. Ibis, 1863, p. 305.

According to Swinhoe, the eastern form of the Great Reed-Warbler abounds in suitable localities in Formosa in summer. There are, however, no examples from that island in the British Museum.

47. LUSCINIOLA FUSCATA (Blyth).

Phyllopneuste fuscata Swinh. Ibis, 1863, p. 306.

According to Swinhoe, Blyth's Grass-Warbler winters in Formosa in small numbers, but we have not seen examples from that island.

48. †Cisticola volitans (Swinh.).

Calamanthella volitans Swinh. J. As. Soc., Shanghai, no. ii. p. 226 (1859).

Cisticola volitans Swinh. Ibis, 1863, p. 304; Oates, Faun. Brit. Ind. i. p. 273 (1889).

Cisticola exilis (Vig. & Horsf.); La Touche, Ibis, 1898, p. 361.

This Grass-Warbler is resident in North Formosa.

49. †Cisticola cisticola (Temm.).

Cisticola schœnicola Bonap.; Swinh. Ibis, 1863, p. 303.

Cisticola cursitans Frankl.; La Touche, op. cit. 1898, p. 361.

The Rufous Grass-Warbler is resident in North Formosa and probably throughout the island.

The eggs mentioned by Swinhoe as those of this species are evidently the eggs of a *Zosterops*.

50. †Phylloscopus borealis (Blas.).

Phyllopneuste silvicultrix Swinh. Ibis, 1863, p. 307.

Phyllopneuste borealis Swinh. P. Z. S. 1871, p. 356.

Phylloscopus borealis La Touche, Ibis, 1898, p. 363.

The Arctic Willow-Warbler was observed and shot by Swinhoe at Tainan (Taiwanfoo), South-west Formosa, in October. La Touche met with a flock at Tamsui in January.

51. Phylloscopus coronatus (Temm.).

Phyllopneuste coronata Swinh. Ibis, 1863, p. 307.

According to Swinhoe, a few examples of the Crowned Willow-Warbler visit Formosa in winter, but we have not seen a specimen from this locality.

52. †Phylloscopus superciliosus (Gmel.).

Reguloides superciliosus Swinh. Ibis, 1863, p. 307.

The Yellow-browed Warbler is not uncommon in winter according to Swinhoe. La Touche believes that he heard its note in winter and spring at Tamsui.

53. †Hororornis robustipes (Swinh.).

Horeites robustipes Swinh. Ibis, 1866, p. 398; id. P. Z. S. 1871, p. 351.

The types of this species of Bush-Warbler were procured by Swinhoe from the interior of S. Formosa, but in his notes on these birds he does not state the locality where they were shot.

Seebohm [*cf.* Cat. Birds B. M. v. p. 136 (1881)] has united this bird with *H. fortipes* (Hodgs.), but it appears to us to be quite distinct from that species, and perhaps to be more nearly allied to *H. sinensis* (La Touche). The Formosan form differs, however, from *both* these in its smaller size, the wing- and tail-measurements being considerably less, and in having the sides of the body and flanks rusty-olive. It resembles *H. fortipes* in having a longer, stouter bill, and approaches *H. sinensis* in having the throat and breast whiter.

The types measure respectively: wing 1·95 inch, tail 1·8; wing 1·9, tail (worn) 1·5.

54. †Horornis canturiens (Swinh.).

Calamoherpe canturiens and *C. minuta* Swinhoe, Ibis, 1863, p. 306.

Cettia canturiens and *C. cantans minuta* La Touche, op. cit. 1895, p. 332.

Cettia canturiens and *C. minuta* La Touche, op. cit. 1898, p. 363.

The Chinese Bush-Warbler is resident according to Swinhoe, and was observed by La Touche in both North and South Formosa from November to the end of April.

As remarked by La Touche (*cf.* 'Ibis,' 1906, pp. 147–150), *Cettia canturiens* is the male and *C. minuta* the female of one and the same species.

55. †Urosphena squamiceps (Swinh.).

Tribura squamiceps Swinh. P. Z. S. 1871, p. 355.

Horornis squamiceps La Touche, Ibis, 1895, p. 331; 1898, p. 363.

Swinhoe's Bush-Warbler is found in winter on the hills and mountains of North and South Formosa.

56. *Suya crinigera Hodgs.

Suya striata Swinh. Ibis, 1863, p. 301.

Suya crinigera La Touche, op. cit. 1898, p. 359.

a. ♂. Ho Ho Mt., 5000 ft., March 1906.

Iris reddish golden; bill black, whitish at the base of the lower mandible; feet cinnamon-coloured.

The Brown Hill-Warbler is resident in the hills of North and Central Formosa, and appears to be indistinguishable from Indian and Chinese examples.

57. †Prinia extensicauda (Swinh.).

Drymœca extensicauda and *D. flavirostris* Swinh. Ibis, 1863, pp. 299, 300.

Prinia extensicauda Sharpe, Cat. Birds B. M. vii. p. 199 (1883).

Prinia inornata La Touche (nec Sykes), Ibis, 1895, p. 331; 1898, p. 360.

The Formosan Wren-Warbler is resident on the plains and lower hills.

58. †Burnesia sonitans (Swinh.).

Prinia sonitans Swinh. Ibis, 1863, p. 302; La Touche, op. cit. 1895, p. 331; 1898, p. 359.

Burnesia sonitans Sharpe, Cat. Birds B. M. vii. p. 205 (1883).

This Wren-Warbler is resident on the plains and lower hills.

Turdidæ.

59. †Turdus fuscatus Pall.

Turdus fuscatus Pall.; Swinh. Ibis, 1863, p. 277.

Swinhoe found immature examples of the Dusky Ouzel common at Tamsui in spring.

60. Turdus naumanni Temm.

Turdus naumanni Swinh. Ibis, 1863, p. 277.

An immature female of the Red-tailed Ouzel was shot by Swinhoe at Tamsui on the 19th of February.

61. †Turdus pallidus Gmel.

Turdus pallidus Swinh. Ibis, 1863, p. 276.

Merula pallida La Touche, op. cit. 1895, p. 330; 1898, p. 356.

The Pale Ouzel winters in North Formosa and probably throughout the rest of the island.

62. †TURDUS CHRYSOLAUS Temm.

Turdus chrysolaus Swinh. Ibis, 1863, p. 276.

Merula chrysolaus Seebohm, Cat. Birds B. M. v. p. 275 (1881); La Touche, Ibis, 1898, p. 356.

The Brown Japanese Ouzel has been procured in North Formosa in early spring.

63. TURDUS OBSCURUS Gmel.

Turdus obscurus Swinh. Ibis, 1863, p. 277.

Merula obscura La Touche, op. cit. 1898, p. 356.

The Dark Ouzel occurs in North Formosa in spring.

64. †TURDUS ALBICEPS Swinh.

Turdus albiceps Swinh. Ibis, 1864, p. 363; 1866, pp. 135, 315, pl. v.

Merula albiceps Seebohm, Cat. Birds B. M. v. p. 259 (1881); id. Ibis, 1895, p. 213; La Touche, op. cit. 1895, pp. 325, 329, 330.

The Formosan Ouzel is peculiar to the island.

65. *OREOCINCLA VARIA (Pall.).

Oreocincla hancii Swinh. Ibis, 1863, p. 275.

Oreocincla varia Swinh. P. Z. S. 1871, p. 367.

Geocichla varia La Touche, Ibis, 1898, p. 357; Seebohm, Monogr. Turdidæ, i. p. 1, pl. i. (1898).

a. ♀. Mt. Morrison, 8000 ft., Jan. 1906.

b, c. ♀. Racu Racu Mts., 7000 ft., Feb. 1906.

d. ♀. Kiu-Kong-Chin Mt., 5000 ft., March 1906.

Iris brown; bill light brown, yellowish at the base; feet flesh-coloured.

White's Thrush winters in Formosa.

66. *MONTICOLA MANILLA (Bodd.).

Petrocincla manilensis Swinh. Ibis, 1863, p. 274.

Monticola solitarius P. L. S. Müller (nec Linn.); La Touche, Ibis, 1895, p. 331; 1898, p. 357.

a. ♂. Ho Ho Mt., 5000 ft., March 1906.

This Blue Rock-Thrush is resident in suitable localities throughout Formosa and the Pescadores.

67. *MICROCICHLA SCOULERI (Vigors).

Microcichla scouleri Sharpe, Cat. Birds B. M. vii. p. 322 (1883).

a, b. ♂ ♀. Mt. Morrison, 9000 ft., Jan. 1906.

c. ♂. Sho-kur-ran torrent, Mt. Morrison, 9000 ft., Jan. 1906.

d–g. ♂ ♀. Racu Racu torrent, Feb. 1906.

Iris very dark brown; bill black; legs and feet pure white.

So far as we can ascertain, the Little Forktail has not previously been recorded from Formosa. Formosan examples appear to have the culmen slightly longer and rather more curved upwards than in typical examples from India and China, but in other respects the birds seem to be perfectly similar.

68. RUTICILLA AURORЕA (Pall.).

Ruticilla aurorea Swinh. Ibis, 1863, p. 299; La Touche, op. cit. 1895, p. 331; 1898, p. 363.

The Daurian Redstart frequents the lower hills and plains in winter.

69. CALLIOPE CAMTSCHATKENSIS (Gm.).

Calliope kamtschatkensis (Gmel.); Swinh. Ibis, 1863, p. 298.

Calliope kamschatkensis La Touche, op. cit. 1895, p. 331.

The Ruby-throat is a winter visitor to Formosa. Holst procured a large series between the months of November and January.

70. *IANTHIA CYANURA (Pall.).

Ianthia cyanura Swinh. Ibis, 1863, p. 298.

Tarsiger cyanurus La Touche, op. cit. 1898, p. 367.

a, b. ♂. Mt. Morrison, 8000 ft., Jan. 1906.

Both the males of this Bush-Robin obtained are in a plumage resembling that of the adult female.

71. *IANTHIA JOHNSTONIÆ. (Plate IV.)

Ianthia johnstoniæ Grant, Bull. B. O. C. xvi. p. 118 (1906).

a. ♂. Racu Racu Mts., 8000 ft., Feb. 1906.
b. ♀. Mt. Morrison, 8000 ft., Jan. 1906.
} *(Types of the species.)*

Adult male. Entire head and throat black, shading into blackish slate-colour on the hind-neck; a lengthened white eyebrow-stripe commencing above the lores and continued backwards over the ear-coverts along the sides of the occiput; a band of feathers bordering the throat, and the hind-neck, as well as the scapulars, bright chestnut-maroon, shading into orange towards the base of the feathers; rest of the back black, deep slate-grey in the middle, rump-feathers tipped with orange-buff; rest of the under parts dull brownish orange; middle of the belly and under tail-coverts white; wings brownish black edged with greyish olive on the outer webs of the quills; tail black. Iris dark brown.

Total length ca. 5·1 inches; wing 2·9; tail (worn) 2·3; tarsus 1·1.

Adult female. General colour above dark olive, with the long eyebrow-stripe less strongly marked than in the male, especially in front of the eye; under parts dull yellowish olive, much lighter than the upper parts, and palest on the throat, middle of the belly, and under tail-coverts; quills and tail brownish black; outer webs margined with brownish olive.

Total length ca. 5·1 inches; wing 2·9; tail 2·45; tarsus 1·15.

This remarkable Bush-Robin is one of Mr. Goodfellow's most important discoveries in the highlands of Formosa. As may be seen from the figure (Pl. IV.), the style of coloration in the male is so absolutely different from that of any other member of the genus that we were at first inclined to think that the bird would prove to be generically distinct from *Ianthia*, but in all its structural characters it agrees well with other species of that genus.

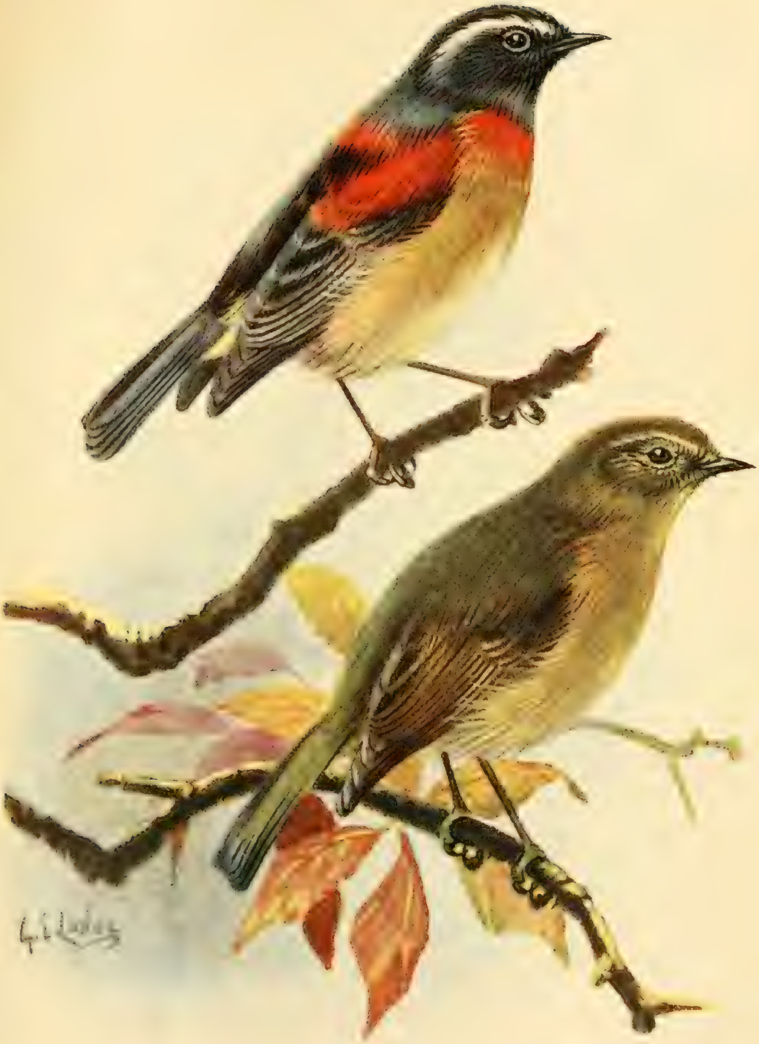
72. †NOTODELA MONTIUM (Swinh.).

Myiomela montium Swinh. Ibis, 1864, p. 362; 1866, p. 392.

Notodela montium Swinh. P. Z. S. 1871, p. 359; Sharpe, Cat. Birds B. M. vii. p. 24 (1883); La Touche, Ibis, 1895, pp. 321, 323, 331.

This Blue Robin is peculiar to Formosa, where it is resident in the forest-districts of the south.

Ibis. 1907. Pl. IV.



G. E. LODGE, DEL.]

[WITHERBY & CO., SCULP. ET IMP.

IANTHIA JOHNSTONIÆ, ♂ & ♀.

73. PRATINCOLA MAURA (Pall.).

Pratincola indica (Blyth); Swinh. Ibis, 1863, p. 298.

According to Swinhoe, the Indian Stonechat is met with on the plains of Formosa in winter, but we have not examined specimens from the island. The British Museum contains an example collected by Swinhoe in Hainan.

CINCLIDÆ.

74. †CINCLUS MARILA (Swinh.).

Hydrobata marila Swinh. J. As. Soc., Shanghai, no. ii. p. 227 (1859); id. Ibis, 1860, pp. 187, 360.

Cinclus pallasii Swinh. (nec Temm.) op. cit. 1863, p. 272.

Cinclus marila La Touche, op. cit. 1898, p. 362.

This Dipper is peculiar to Formosa. Swinhoe and Mr. La Touche procured it in the north of the island, and it was seen by Mr. Goodfellow on Mount Morrison.

In the opinion of Dr. Bianchi, this insular form must be regarded as distinct from *C. pallasi*.

The Formosan Dipper is closely allied to *C. soulei* Oustal., which inhabits South China from the Yangtse Valley southwards.

The young of *C. marila* have the light cross-bars on the under parts whitish, and in this respect approach typical *C. pallasi* Temm.; in *C. soulei* these parts are invariably barred with pale rufous and buff; moreover, the bill in *C. soulei* is perhaps somewhat stronger and coarser towards the tip than is the case in the Formosan birds.

TROGLODYTIDÆ.

75. *ANORTHURA FUMIGATA (Temm.).

Anorthura fumigata Sharpe, Cat. Birds B. M. vi. p. 276, pl. xvi. fig. 1 (1881).

a–c. ♂ ♀. Mt. Morrison, 9000 ft., Jan. 1906.

Iris dark brown; bill dark brown, yellowish at the base; feet dark brown.

We have referred the three Wrens collected by Mr. Goodfellow on the summit of Mt. Morrison to the present species.

They have the barring on the lower back and rump rather less distinct than in the majority of Japanese specimens; and the throat and upper breast almost uniform pale rufous-brown, only one of the three Formosan specimens shewing any trace of dusky bars. On the other hand, certain Japanese examples approach the Formosan birds so closely that I am unable to separate them. It is the first time that a Wren has been recorded from the island.

TIMELIIDÆ.

76. *TROCHALOPTERUM TAIVANUM (Swinh.).

Garrulax taewanus, Swinh. J. As. Soc., Shanghai, no. ii. p. 228 (1859).

Garrulax taivanus Swinh. Ibis, 1863, p. 279.

Malacocercus taivanus Swinh. op. cit. 1865, p. 546.

Leucodioptrum taivanum Swinh. P. Z. S. 1871, p. 371.

Trochalopterum taivanum Sharpe, Cat. Birds B. M. vii. p. 377 (1883); La Touche, Ibis, 1895, p. 331; 1898, p. 357.

a–c. ♂ ♀. Ho Ho Mt., 5000 ft., Feb., March 1906.

d. ♀. Kiu-Kong-Chin Mt., 5000 ft., March 1906.

Iris dark grey; bill brownish yellow; feet dull yellow.

This Laughing-Thrush is peculiar to Formosa, where it is resident on the plains and lower hills up to an elevation of about 5000 feet.

77. *TROCHALOPTERUM MORRISONIANUM Grant.

Trochalopterum morrisonianum Grant, Bull. B. O. C. xvi. p. 120 (1906).

a, b. ♂ ♀. Mt. Morrison, 9000 ft., Jan. 1906. (*Types of the species.*)

c–l. ♂ ♀. Mt. Morrison, 8000–9000 ft., Jan. 1906.

Adult male and female. Most nearly allied to *T. blythi* Verr., but differ chiefly in the following points:—The top of the head olive-grey, each feather with the shaft and a narrow marginal band black; a band of white feathers commencing above the lores, interrupted over the eye, and continuous along the sides of the occiput: feathers surrounding the eye and ear-coverts deep chestnut-brown; a white moustachial stripe, commencing with a light chestnut spot at the base of the lower mandible; the rest of the upper parts and the sides of the belly and thighs olive-grey; the longer feathers of the mantle, sides of the neck, and breast dull chestnut fringed with white; the middle of the belly, flanks, and under tail-coverts dark chestnut; the wings and tail very similar to those of *T. blythi*, but the outer margins of the primaries much yellower. Iris dark brown; bill light brown; feet reddish cinnamon (raw sienna).

♂. Total length ca. 11·0 inches; wing 4·3; tail 5·9; tarsus 1·75.

♀. Total length ca. 10·0 inches; wing 4·0; tail 5·0; tarsus 1·6.

The fine series of this handsome Laughing-Thrush collected on the higher slopes of Mount Morrison shews no variations in colour, except that some individuals have the whitish fringes to the feathers of the mantle and breast rather more strongly indicated than others.

78. *POMATORHINUS MUSICUS Swinh.

Pomatorrhinus musicus Swinh. J. As. Soc., Shanghai, no. ii. p. 228 (1859).

Pomatorhinus musicus Swinh. Ibis, 1863, p. 284, pl. vi.; Wardlaw Ramsay, op. cit. 1878, p. 139; Sharpe, Cat. Birds B. M. vii. p. 424 (1883); La Touche, Ibis, 1895, p. 330.

a–c. ♂ ♀. Ho Ho Mt., 5000 ft., Feb., March 1906.

d–g. ♂ ♀. Kiu-Kong-Chin Mt., 5000 ft., March 1906.

Iris creamy yellow; upper mandible black, lower white; feet dark brown.

This Scimitar-Babbler is peculiar to Formosa where it is met with on the lower hills and plains.

79. *POMATORHINUS ERYTHROCNEMIS Gould.

Pomatorhinus erythrocnemis Gould, P. Z. S. 1862, p. 281; id. B. Asia, iii. pl. 33 (1864); Swinh. Ibis, 1863, p. 286; Wardlaw Ramsay, op. cit. 1878, p. 144; Sharpe, Cat. Birds B. M. vii. p. 427 (1883); La Touche, Ibis, 1895, pp. 311, 312, 331.

a, b. ♀. Racu Racu Mts., 6000 ft., Jan. 1906.
c–g. ♂ ♀. Ho Ho Mt., 5000 ft., Feb., March 1906.
h. ♂. Kiu-Kong-Chin Mt., 5000 ft., March 1906.

Iris light brown; upper mandible black, lower brownish; feet light reddish brown.

This species is also peculiar to Formosa, where it appears to be confined to the hills and mountains of the central part of the island.

80. †GARRULAX RUFICEPS Gould.

Garrulax ruficeps Gould, P. Z. S. 1862, p. 281; Swinh. Ibis, 1863, p. 282; Sharpe, Cat. Birds B. M. vii. p. 438 (1883).

The Formosan Red-capped Laughing-Thrush is peculiar to the central wooded mountains of the island.

81. *DRYONASTES PŒCILORHYNCHUS (Gould).

Garrulax pœcilorhyncha Gould, P. Z. S. 1862, p. 281; Swinh. Ibis, 1863, p. 283; Gould, B. Asia, iii. pl. 51 (1864).

Dryonastes pœcilorhynchus Sharpe, Cat. Birds B. M. vii. p. 460 (1883).

a–c. ♂ ♀. Racu Racu Mts., 6000–7000 ft., Jan., Feb. 1906.

d–h. ♂ ♀. Ho Ho Mt., 5000 ft., March 1906.

Iris dark brown; bare skin of the face indigo-blue; bill blackish at the base, tip yellow; feet pale bluish green.

The White-vented Laughing-Thrush is peculiar to the forest-clad ranges of the island.

The specimens collected by Mr. Goodfellow at elevations of from 5000–7000 feet differ from the type of *D. pœcilorhynchus*, and from other specimens in the British Museum collected by Swinhoe, in having the vent and under tail-coverts pure *white* instead of buff, and the upper parts rather more olivaceous and less rufous. It is possible that these differences may indicate a slightly different highland form, but on this point I am not quite satisfied, as the buff of the under-tail-coverts in Swinhoe's birds (in one of them these feathers are partly white) may be due to stain, and the different tint of the upper parts may be seasonal. To settle this point it will be necessary to procure carefully prepared examples of *D. pœcilorhynchus* from North Formosa.

82. *Alcippe morrisonia Swinh.

Alcippe morrisonia Swinh. Ibis, 1863, p. 296; 1865, p. 107; La Touche, op. cit. 1895, pp. 314, 321, 332; 1898, p. 358.

Alcippe morrisoniana Sharpe, Cat. Birds B. M. vii. p. 621 (1883).

a–d. ♂ ♀. Racu Racu Mts., 6000 ft., Jan., Feb. 1906.

e. ♀. Ho Ho Mt., 4000 ft., March 1906.

The Mount Morrison Babbler is peculiar to Formosa and is distributed throughout the mountains and lower hills.

This species is also said to come from "China (Foh-kien)" [*cf.* Sharpe, Hand-l. B. iv. p. 44 (1903)]; but this is no doubt a mistake, as the bird found there is the closely allied *A. hueti* David, which differs in having browner sides and flanks.

83. *Proparus formosanus Grant.

Proparus formosanus Grant, Bull. B. O. C. xvi. p. 120 (1906).

a. ♂. Mt. Morrison, 9000 ft., Jan. 1906. (*Type of the species.*)

Adult male. Most nearly allied to *P. vinipectus* (Hodgs.), but easily distinguished by the absence of the white superciliary streak, which is represented by a pale greyish brown band extending along the sides of the occiput; ear-coverts pale vinous-brown; crown of the head earthy-brown like the mantle; throat and breast white, strongly streaked with brown; breast pale vinous; outer edges of the secondaries of a duller rufous-chestnut shade.

Total length ca. 4·5 inches; wing 2·1; tail 2·1; tarsus 0·9.

The discovery of this Tit-Babbler in Formosa is an extremely interesting fact, affording yet another instance of the close connection between the highland fauna of the Himalaya and that of Formosa.

84. *Schœniparus brunneus (Gould).

Alcippe brunnea Gould, P. Z. S. 1862, p. 280; id. B. Asia, iii. pl. 66 (1864); Swinh. Ibis, 1863, p. 297; Sharpe, Cat.

Birds B. M. vii. p. 624 (1883): La Touche, Ibis, 1895, pp. 311, 312, 332; 1898, p. 358.

Alcippe obscurior Grant, Bull. B. O. C. xvi. p. 121 (1906); xix. p. 14 (1906).

a. ♂. Racu Racu Mts., 6000 ft., Feb. 1906. } (*Types of* Alcippe obscurior *Grant.*)
b. ♀. Ho Ho Mt., 5000 ft., Feb. 1906. }
c. ♂. Racu Racu Mts., 7000 ft., Feb. 1906.
d, e. ♀. Ho Ho Mt., 5000 ft., March 1906.

Iris dark brown; bill black; feet olive-brown.

The Brown Tit-Babbler is peculiar to Formosa, where it inhabits the mountains of the interior, descending to the lower wooded foot-hills.

The British Museum contains a large series of *Schœniparus* from various parts of China presented by Messrs. Rickett and La Touche. These specimens had been identified by the donors as *Alcippe brunnea* Gould, and had been added to the National Collection under that name. On comparing Mr. Goodfellow's Formosan birds with this box of light-bellied specimens it was at once apparent that two species were represented; but I unfortunately overlooked the fact that the name of *Alcippe brunnea* Gould had been originally given to the Formosan bird. The Chinese form must stand as:—

SCHŒNIPARUS SUPERCILIARIS (David).

Ixulus superciliaris David, Ann. Sci. Nat. (5) xix. art. 9, p. 4 (1874).

Alcippe brunnea David et Oustal. (nec Gould), Ois. Chine, p. 217 (1877).

The very brief description given by David in his original reference merely says: "Ayant doubles sourcils (cendrés et noir) et le dos olive." This diagnosis might apply to *S. brunneus.*

Later, in 'Les Oiseaux de la Chine,' David and Oustalet considered that *I. superciliaris* David was synonymous with *A. brunnea* Gould, but they evidently had no Formosan birds for comparison, and the description in this work is obviously taken from Chinese examples, the throat, middle of the breast, and belly being described as *whitish*.

Under these circumstances David's name of *I. superciliaris* should be retained for the Chinese form, for, though his original brief description does not mention any of the characteristics which distinguish the Chinese bird from the *A. brunnea* Gould, it is certain that his type specimen came from Foh-kien, whence we have numerous examples.

85. *Stachyrhidopsis præcognitus (Swinh.).

Stachyrhis præcognitus Swinh. Ibis, 1866, p. 310.

Stachyridopsis ruficeps Sharpe, Cat. Birds B. M. vii. p. 598 (1883) [part.] ; La Touche (nec Blyth), Ibis, 1895, pp. 314, 332.

a–c. ♂. Racu Racu Mts., 6000 ft., Jan., Feb. 1906.

In his paper on the birds of Hainan (*cf.* P. Z. S. 1900, p. 476), Ogilvie-Grant identified a single specimen from that island as *S. præcognitus*, and at the same time drew attention to the distinctive characters of the Chinese form, but refrained from giving it a name.

Subsequently, in the 'Bulletin' of the British Ornithologists' Club [xiv. pp. 8 & 9 (1903)], Mr. Rothschild, having received twelve specimens from Mt. Wuchi, described the Hainan bird as a distinct subspecies, and at the same time gave the characteristics of three other allied forms, viz. :—*S. ruficeps* (Blyth), *S. rufifrons* (Hume), and *S. præcognitus* (Swinh.). He, however, entirely ignored the Chinese race, which has quite as good a claim as the others to be recognised as distinct. Thanks to Mr. C. B. Rickett, we have now a very large series of the Chinese form.

S. ruficeps and its allies may be briefly characterized as follows :—

(1) S. ruficeps (Blyth).

Crown light chestnut, which extends over the nape ; upper parts warm brownish olive ; throat and under parts yellow, inclining to buff on the breast ; sides and flanks tawny-olive.

Hab. Nepal and Sikhim to Assam.

(2) S. SINENSIS, subsp. n.

Crown light chestnut, which does not extend over the nape, and without black shafts to the feathers; upper parts cold greyish olive; throat yellowish, middle of breast and belly pale whitish olive, sides and flanks greyish olive.

Hab. China.

(3) S. RUFIFRONS (Hume).

Crown light chestnut, which does not extend over the nape, and with more or less marked black shafts to the feathers; throat whitish; upper parts brownish olive; under parts pale tawny or tawny-olive washed with buff on the chest and inclining to whitish on the middle of the chest and belly.

Hab. Ranging from the lower hills of Sikhim to Pegu and Tenasserim.

(4) S. PRÆCOGNITUS (Swinh.).

Crown dark chestnut, which extends over the nape; upper parts dark brownish olive; throat rather bright yellow; sides and flanks greyish olive, inclining to pale yellowish on the middle of the breast and belly.

Hab. Formosa.

(5) S. GOODSONI Rothsch.

Differs slightly from *S. præcognitus* in having the upper parts rather darker and of a cold greyish olive tinge, as in *S. sinensis.*

According to Mr. Rothschild, the throat is of a brighter yellow than in *S. præcognitus*, but in our single Hainan example this character is not apparent.

Hab. Hainan.

86. *MYIOPHONEUS INSULARIS Gould.

Myiophoneus insularis Gould, P. Z. S. 1862, p. 280; id. B. Asia, iii. pl. 28 (1864); Sharpe, Cat. Birds B. M. vii. p. 11 (1883); La Touche, Ibis, 1898, p. 357.

Myiophonus insularis Swinh. Ibis, 1863, p. 277.

a. ♀. Ho Ho Mt., 5000 ft., March 1906.

Iris black or very dark brown; bill and feet black.

This species of Whistling-Thrush is peculiar to Formosa, where it is confined to the mountains.

87. *MALACIAS AURICULARIS (Swinh.).

Kittacincla auricularis Swinh. Ibis, 1864, p. 361.

Sibia auricularis Sclater, op. cit. 1866, p. 109, pl. iv.; Swinh. op. cit. 1866, pp. 400, 401, 410; La Touche, op. cit. 1895, pp. 314, 321, 330.

Malacias auricularis Sharpe, Cat. Birds B. M. vii. p. 405 (1883).

a–m. ♂ ♀. Racu Racu Mts., 6000–7000 ft., Jan., Feb. 1906.

n–q. ♂ ♀. Ho Ho Mt., 5000 ft., Feb., March 1906.

Iris brown; bill black; feet yellowish flesh-coloured.

It is a question whether this species of "*Sibia*" ought not to be placed in a separate genus, the extremely elongated ear-coverts rendering it very distinct from the typical species of *Malacias* and *Lioptila*. It is peculiar to Formosa, where it frequents the wooded hills.

88. *ACTINODURA MORRISONIANA Grant.

Actinodura morrisoniana Grant, Bull. B. O. C. xvi. p. 119 (1906).

a, b. ♂ ♀. Mt. Morrison, 8000 ft., Jan. 1906. (*Types of the species.*)

Adult male and female. Top and sides of the head deep chestnut-brown; chin and throat paler chestnut, the feathers with rufous-buff sides, giving these parts a somewhat streaked appearance; upper mantle, sides of the neck and breast brownish grey, streaked with white; rest of the back reddish olive with fine indistinct cross-bars; belly and under tail-coverts reddish brown, streaked with rusty-buff; wings black, barred with rufous, the primaries margined with white along the terminal portion of the outer web; bastard-wing and greater wing-coverts black, edged with grey; the rest of the wing-coverts and scapulars reddish olive; tail-feathers black barred with rufous at the base, grey towards the tip, and tipped with white.

♂. Total length ca. 7·0 inches; wing 3·3; tail 3·3; tarsus 1·1.

♀. Total length ca. 7·0 inches; wing 3·1; tail 3·1; tarsus 1·1.

This remarkably distinct bird will not need comparison with any previously described species, the coloration being so strikingly different.

On looking through the species of *Actinodura* in the British Museum I compared the Central Formosan bird with *A. egertoni* Gould, which is perhaps its nearest ally. This led to my looking rather closely over the large series included under the latter heading, and I find that three fairly well-marked forms are represented in it, viz. :—

(1) ACTINODURA EGERTONI Gould.

Hab. Nepal, Sikhim, Dafla Hills, Shengorh Peak (*Godwin-Austen*).

(2) ACTINODURA KHASIANA Godwin-Austen.

Actinura khasiana Godwin-Austen, J. As. Soc. Beng. xlv. pt. ii. p. 76 (1876).

Hab. Shillong; Naga and Khasia Hills; Manipur.

(3) ACTINODURA RIPPONI, subsp. n.

Hab. Mount Victoria, Chin Hills, 6000–7000 feet.

The differences between the three forms may be briefly tabulated as follows :—

A. egertoni Gould.	*A. khasiana* Godwin-Austen.	*A. ripponi*, subsp. n.
Forehead.—Dark chestnut, extending on to the crown.	Rufous, usually not extending beyond the eye:	Rufous, usually not extending beyond the eye.
Crown.—Dark ash-grey.	Light ash-grey.	Dark ash-grey.
Back.—Reddish olive.	Ochraceous.	Greyish olive.
Middle tail-feathers.—Dark bars usually very faint.	Dark bars usually distinct.	Dark bars usually distinct.

In a very large series the colour of the back is quite constant, and the three forms may easily be separated by this character alone.

89. *YUHINA BRUNNEICEPS Grant.

Yuhina brunneiceps Grant, B. O. C. xvi. p. 121 (1906).

a, b. ♂ ♀. Racu Racu Mts., 6000 ft., Feb. 1906. (*Types of the species.*)

c–e. ♂. Racu Racu Mts., 6000 ft., Jan. 1906.

Adult male and female. Top of the head and pointed crest reddish brown, bordered on either side by a black stripe commencing above the lores and continued along the sides of the occiput; lores, feathers above the eye, and the more or less concealed occipital feathers whitish; cheeks and ear-coverts yellowish white, bordered all round by a narrow black band; rest of the upper parts dull olive-brown; under parts yellowish white, the chin and throat with small arrow-shaped black markings at the ends of the shafts; the sides and flanks streaked with rufous; quills and tail brownish black, margined externally with dull olive-brown; wing-coverts like the back; axillaries and under wing-coverts white. Iris red; bill black; feet yellowish brown.

♂. Total length ca. 4·5 inches; wing 2·5; tail 1·9; tarsus 0·7.

♀. Total length ca. 4·5 inches; wing 2·5; tail 1·7; tarsus 0·75.

I am not quite satisfied that the present species has been correctly placed in the genus *Yuhina*; for though it possesses all the more marked characteristics of that genus—such as the lengthened pointed crest and the shape of the wing and tail, &c.—it has proportionately a much more slender bill. Though very distinct in colour from all previously described species of *Yuhina*, it is most nearly allied to *Y. nigrimentum* Hodgs.

90. *HERPORNIS TYRANNULUS Swinh.

Herpornis xantholeuca Swinh. (nec Hodgs.) Ibis, 1863, p. 208.

Herpornis xanthochlora Swinh. op. cit. 1863, p. 293.

Herpornis tyrannulus Swinh. op. cit. 1870, p. 347, pl. x.; id. P. Z. S. 1871, p. 373.

a. ♀. Ho Ho Mt., 5000 ft., Feb. 1906.

Iris ruby-red; bill creamy-white at the base; feet yellowish flesh-coloured.

This form of *H. xantholeuca* Hodgs. is distinguishable only on account of its somewhat smaller size. We have examples from Formosa, Hainan, and Foh-kien.

91. *Liocichla steeri Swinh.

Liocichla steeri Swinhoe, Ibis, 1877, p. 474, pl. xiv.; La Touche, op. cit. 1895, pp. 321, 332.

a–i. ♂ ♀. Racu Racu Mts., 6000 ft., Jan., Feb. 1906.

k. ♀. Ho Ho Mt., 5000 ft., Feb. 1906.

Iris brown; bill blackish; feet olive-brown.

The sexes of Steere's Hill-Tit do not differ from one another in plumage.

The above-mentioned examples agree in every respect with the type in the British Museum. The sex of the latter specimen is not recorded, nor the exact locality in Formosa whence it was procured by Professor Steere.

La Touche obtained a single female specimen on the 13th of November, 1893, in the mountain-forests near Bangkimtsing, South Formosa.

92. †Suthora bulomachus Swinh.

Suthora bulomachus Swinh. Ibis, 1866, pp. 298–303, pl. ix.; Sharpe, Cat. Birds B. M. vii. p. 490 (1883); La Touche, Ibis, 1898, p. 361.

The Formosan Crow-Tit is peculiar to the island, where it is resident in the north. Swinhoe's types (cage-birds) were bought by him on the road from Tainan (Taiwanfoo) to Takow, in South Formosa. Several specimens were collected by Holst.

93. *Suthora morrisoniana Grant.

Suthora morrisoniana Grant, Bull. B. O. C. xvi. p. 119 (1906).

a. ♂. Mt. Morrison, 9000 ft., Jan. 1906. (*Type of the species.*)

Adult male. General colour above dull yellowish olive, shading into dull orange-buff on the crown, forehead, and rump; *no black band above the eye*; a short band of lengthened white feathers behind the eye; cheeks greyish white, slightly mottled with dusky; chin and throat black; sides of the breast and flanks like the back, but paler and more orange; middle of the breast and belly and the under tail-coverts creamy white; axillaries, under wing-coverts, and the inner edges of the quills white; wings much as in *S. verreauxi* Sharpe, with the outer margins to the quills orange-buff; tail similar to that of *S. nipalensis* Hodgs. Iris red; bill pink.

Total length ca. 4·0 inches; wing 1·9; tail 2·2; tarsus 0·7.

This distinct Crow-Tit, of which only one adult male example was procured, is perhaps most nearly allied to *S. verreauxi* Sharpe, from China, and *S. craddocki* Bingham, from the Southern Shan States. From both these the Formosan bird is distinguished by the yellowish olive colour of the upper parts, sides of the breast and flanks, as well as by other characters.

PYCNONOTIDÆ.

94. †PYCNONOTUS SINENSIS (Gmel.).

Ixos sinensis Swinhoe, Ibis, 1863, p. 289.

Pycnonotus sinensis Sharpe, Cat. Birds B. M. vi. p. 149 (1881); La Touche, Ibis, 1895, p. 333; 1898, p. 365.

The Chinese Bulbul is resident all over the lower hills and plains, except at the South Cape, where its place is taken by *P. taivanus* Styan.

95. †PYCNONOTUS TAIVANUS Styan.

Pycnonotus taivanus Styan, Ibis, 1893, p. 470; 1894, p. 337, pl. ix.; La Touche, op. cit. 1895, pp. 328, 329, 333.

This Bulbul has apparently a most restricted range, and, so far, has only been found at the South Cape, the southernmost point of Formosa. Only three examples are known: the type in Mr. Styan's collection, and two shot by La Touche. One of the latter skins is now in the British Museum.

96. *HYPSIPETES NIGERRIMUS Gould.

Hypsipetes nigerrima Gould, P. Z. S. 1862, p. 282; Swinh. Ibis, 1863, p. 287; Gould, B. Asia, iii. pl. 12 (1864); Sharpe, Cat. Birds B. M. vi. p. 41 (1881); La Touche, Ibis, 1895, pp. 314, 321, 324, 333; 1898, p. 365.

a, b. ♂. Ho Ho Mt., 5000 ft., Feb., March 1906.

c–g. ♂. Kiu-Kong-Chin Mt., 5000 ft., March 1906.

Iris dark brown; bill, feet, and nails coral-red.

This Black Bulbul is peculiar to Formosa and resident in the mountains of the interior. It is a partial migrant, disappearing from North Formosa in winter, and apparently retiring to the south of the island. It no doubt breeds throughout the hilly districts from north to south.

97. *Spizixus cinereicapillus Swinh.

Spizixos semitorques Swinh. (nec Swinh. 1861) Ibis, 1863, p. 290.

Spizixus cinereicapillus Swinh. P. Z. S. 1871, p. 370; La Touche, Ibis, 1895, p. 320.

Spizixus cinereiceps La Touche, t. c. pp. 325, 333.

a. ♂. Racu Racu Mts., 6000 ft., Feb. 1906.

b–f. ♂ ♀. Ho Ho Mt., 5000 ft., Feb., March 1906.

Iris reddish brown; bill cream-coloured; feet brown.

The Grey-headed Mountain-Bulbul is resident in the mountains and hills of Central and South Formosa.

According to Hartlaub, this species has been found in Hainan.

Campophagidæ.

98. *Graucalus rex-pineti Swinh.

Graucalus rex-pineti Swinh. Ibis, 1863, p. 265; 1866, p. 402; Sharpe, Cat. Birds B. M. iv. p. 35 (1879).

a–f. ♂ ♀ et ♂ imm. Ho Ho Mt., 5000 ft., Feb., March.

Iris brown; bill and feet black.

This Cuckoo-Shrike inhabits the mountain-forests of the interior.

99. *Pericrocotus griseigularis Gould.

Pericrocotus griseigularis Gould, P. Z. S. 1862, p. 282; Swinh. Ibis, 1863, p. 263; Gould, B. Asia, ii. pl. 3 (1864); Sharpe, Cat. Birds B. M. iv. p. 83 (1879); La Touche, Ibis, 1895, pp. 321, 323, 334.

a–f. ♂ ♀. Racu Racu Mts., 6000 ft., Jan., Feb. 1906.

g–m. ♂ ♀. Ho Ho Mt., 5000 ft., Feb., March 1906.

Iris dark brown; bill and feet black.

The colour of the breast in the males of this Minivet varies considerably in intensity from orange-vermilion to deep orange-vermilion. Examples from Hainan and China differ in no way from typical Formosan specimens, and these localities should therefore be added [*cf.* Sharpe, Hand-l. B. iii. p. 302 (1901)].

100. Pericrocotus cinereus Lafresn.

Pericrocotus cinereus Swinh. Ibis, 1863, p. 263.

According to Swinhoe, this Minivet occurs in Formosa on migration; he once saw a small flock on the 5th of September at Tainan, S.W. Formosa.

Muscicapidæ.

101. Hemichelidon sibirica (Gmel.).

Hemichelidon sibirica La Touche, Ibis, 1898, p. 367.

La Touche shot a single specimen of the Sooty Flycatcher near Tamsui on the 4th of November.

102. Alseonax latirostris (Raffl.).

Hemichelidon latirostris Swinh. Ibis, 1863, p. 262.

The Brown Flycatcher visits Formosa on migration. Swinhoe was no doubt mistaken in calling it a "summer visitant."

103. Muscicapa griseisticta (Swinh.).

Hemichelidon griseisticta Swinh. Ibis, 1863, p. 262.

Like the last species, this Flycatcher no doubt only visits Formosa on migration and is not a summer visitant.

104. *Cyornis vivida Swinh.

Cyornis vivida Swinh. Ibis, 1864, p. 363; 1866, p. 393, pl. xi.

Niltava vivida Sharpe, Cat. Birds B. M. iv. p. 463 (1879).

a, b. ♂. Racu Racu Mts., 6000 ft., Jan., Feb. 1906.

c, d. ♂ ♀. Ho Ho Mt., Feb., Mar. 1906.

Iris dark brown; bill black; feet brown.

This Blue Flycatcher is peculiar to the mountains of Formosa. The closely allied but larger form from Tenasserim has now been separated under the name *C. oatesi* (Salvad.). The males are much alike, except in size; but the females of the latter are, as a rule, much more olive and less grey on the upper parts than is the case in Formosan specimens.

105. POLIOMYIAS LUTEOLA (Pall.).

Erythrosterna leucura Swinh. (nec Gmel.) Ibis, 1866, p. 313.

Swinhoe states that he obtained a specimen from Central Formosa, but we have not been able to trace what became of it.

106. *MUSCICAPULA HYPERYTHRA (Blyth).

Siphia innexa Swinh. Ibis, 1866, p. 394.

Digenia superciliaris Swinh. P. Z. S. 1871, p. 381.

a. ♂. Ho Ho Mt., 5000 ft., Feb. 1906.

Formosan examples of this small Flycatcher are apparently indistinguishable from typical Indian specimens of *M. hyperythra* (Blyth). The species appears to inhabit the interior of the island.

107. *XANTHOPYGIA AFFINIS Grant.

Ruticilla fuliginosa Swinh. (nec Vig.) Ibis, 1863, p. 298.

Rhyacornis fuliginosa La Touche, op. cit. 1898, p. 362.

Xanthopygia affinis Grant, B. O. C. xvi. p. 118 (1906).

a, b. ♂ ♀. Racu Racu torrent, 6000 ft., Jan. 1906. (*Types of the species.*)

c–i. ♂ ♀.. Racu Racu torrent, 3000 to 7000 ft., Jan., Feb. 1906.

Adult male. Closely resembles the male of *X. fuliginosa* (Vigors), but the lores are less black, being scarcely darker than the crown, and the tips of the tail-feathers are usually dusky. Iris dark brown; bill black; feet brownish. Total length ca. 5·5 inches; wing 3·2; tail 2·3; tarsus 0·95.

Adult female. Differs from the female of *X. fuliginosa* in having the under parts much greyer, with the white squamate markings much less pronounced and confined to the middle of the belly; the tail-feathers with much less white at the base; the white on the outer pair not extending to the terminal half. Total length ca. 5·5 inches; wing 3·0; tail 2·2; tarsus 0·95.

A male and two females of the Formosan Plumbeous Redstart were collected by Swinhoe and identified as

X. fuliginosa. These, as well as a female example in the Rickett Collection procured by Mr. La Touche in N. Formosa, are perfectly similar to the specimens collected by Mr. Goodfellow.

108. CYANOPTILA CYANOMELÆNA (Temm.).

Niltava cyanomelæna La Touche, Ibis, 1898, p. 367.

La Touche procured a single female of the Japanese Blue Flycatcher near Tamsui on the 28th of October.

109. *HYPOTHYMIS AZUREA (Bodd.).

Myiagra azurea Swinh. Ibis, 1863, p. 261; La Touche, Ibis, 1895, p. 334.

Hypothymis azurea La Touche, Ibis, 1898, p. 367.

a. ♂. Ho Ho Mt., 5000 ft., March 1906.

The Black-naped Flycatcher is resident throughout the lower hills and on the plains.

110. †TERPSIPHONE PRINCEPS (Temm.).

Tchitrea principalis Temm.; Swinh. Ibis, 1863, p. 260.

Swinhoe records the capture of a female Paradise Flycatcher at Tamsui in April 1862. There is a male in the British Museum also procured by Swinhoe in May 1866.

111. *CRYPTOLOPHA FULVIFACIES (Swinh.).

Abrornis fulvifacies Swinh. P. Z. S. 1870, p. 132.

a, b. ♂ ♀. Racu Racu Mts., 7000 ft., Feb. 1906.

A male and female of this Flycatcher-Warbler appear to be perfectly similar to typical examples from China. This species does not seem to have been previously met with in Formosa.

HIRUNDINIDÆ.

112. †HIRUNDO STRIOLATA Boie.

Hirundo daürica Swinh. (nec L.) Ibis, 1863, p. 255.

Cecropis striolata Swinh. P. Z. S. 1871, p. 346.

Hirundo nipalensis? La Touche, Ibis, 1895, p. 334.

Hirundo striolata La Touche, Ibis, 1898, p. 367.

Hirundo substriolata Sharpe (nec Hume), Cat. Birds B. M. x. p. 163 (1885).

The Striated Swallow is resident on the lower hills and on the plains.

113. †HIRUNDO GUTTURALIS Scop.

Hirundo gutturalis Swinh. Ibis, 1863, p. 255; Sharpe, Cat. Birds B. M. x. p. 134 (1885); La Touche, Ibis, 1895, p. 334; 1898, p. 367.

The Eastern Swallow is abundant in summer and is most probably a resident in the south of the island.

114. †COTILE SINENSIS (J. E. Gray).

Cotyle sinensis Swinh. Ibis, 1863, p. 257; Sharpe, Cat. Birds B. M. x. p. 104 (1885); La Touche, Ibis, 1895, p. 335; 1898, p. 367.

The Indian Sand-Martin is resident both in North and South Formosa.

PITTIDÆ.

115. †PITTA NYMPHA Temm. & Schl.

Pitta oreas Swinh. Ibis, 1864, p. 428; Gould, B. Asia, v. pl. 65 (1871).

Pitta nympha Sclater, Cat. Birds B. M. xiv. p. 425 (1888); Seebohm, Ibis, 1895, p. 213.

This Pitta inhabits the mountain-forests of Formosa.

PICIDÆ.

116. *DENDROCOPUS INSULARIS (Gould).

Picus insularis Swinh. Ibis, 1863, p. 390; Gould, B. Asia, vi. pl. 16 (1864).

Dendrocopus insularis Hargitt, Cat. Birds B. M. xviii. p. 272 (1890).

a. ♂. Racu Racu Mts., 7000 ft., Feb. 1906.

b. ♂. Ho Ho Mt., 5000 ft., March 1906.

Examples of this Woodpecker from Formosa are slightly smaller (wing 5·2 inches) than birds procured by La Touche and Rickett in N.W. Foh-kien (wing 5·5–5·6 inches).

117. †GECINUS TANCOLO Gould.

Gecinus tancolo Gould, P. Z. S. 1862, p. 283; id. B. Asia, vi. pl. 35 (1864).

Gecinus tancola Swinh. Ibis, 1863, p. 389.

Gecinus guerini Hargitt, Cat. Birds B. M. xviii. p. 55 (1890) [part.].

Swinhoe procured this Green Woodpecker in the mountains near Tamsui. Unlike the Green Woodpecker of the mainland it apparently does not descend to the lower hills and plains, for La Touche never heard it there. Formosan birds are on the average rather smaller than Chinese (Foh-kien) specimens—the wing of the former measuring from 5·2–5·4 inches, of the latter 5·3–5·8.

118. *IYNGIPICUS KALEENSIS (Swinh.).

Picus kaleensis Swinh. Ibis, 1863, p. 390.

Iyngipicus scintilliceps La Touche (nec Swinh.), Ibis, 1895, p. 336.

Iyngipicus kaleensis Hargitt, Cat. Birds B. M. xviii. p. 315 (1890).

a. ♂ [marked ♀]. Mt. Morrison, 5000 ft., Jan. 1906.

b. ♀. Ho Ho Mt., 5000 ft., Feb. 1906.

Iris red; bill pale slate-coloured at the base, shading into black at the tip; feet slate-coloured.

Immature examples of this Pigmy Woodpecker have the sides and flanks distinctly spotted.

119. IYNGIPICUS WATTERSI Salvad. & Gigl.

Iyngipicus wattersi Salvad. & Gigl. Atti Accad. Tor. xx. p. 825 (1885); Hargitt, Cat. Birds B. M. xviii. p. 317 (1890).

The description of this species was taken from an "adult male" specimen, the exact locality in Formosa whence it was obtained being unknown. Can it be the immature male of *I. kaleensis*? A young bird, procured by Mr. Goodfellow and certainly the young of *I. kaleensis*, seems to agree exactly with the description of the type of *I. wattersi*. Hargitt appears, however, to have examined the type-specimen and regarded it as a distinct species.

CAPITONIDÆ.

120. *CYANOPS NUCHALIS (Gould).

Megalæma nuchalis Gould, P. Z. S. 1862, p. 283: Swinh. Ibis, 1863, p. 387; Gould, B. Asia, vi. pl. 49 (1864).

Cyanops nuchalis La Touche, Ibis, 1895, pp. 321, 324, 336.

a. ♀. Mt. Morrison, 8000 ft., Jan. 1906.
b–d. ♂ ♀. Racu Racu Mts., 7000–8000 ft., Jan. 1906.
e–h. ♂ ♀. Ho Ho Mt., 5000 ft., Feb., March 1906.
i, k. ♂. Kiu-Kong-Chin, 5000 ft., March 1906.

Iris brown or dark brown; bill black, slate-coloured on the sides; feet greyish-green.

The Formosan Barbet is peculiar to the island and inhabits the mountain-forests of the interior.

CUCULIDÆ.

121. †CUCULUS SATURATUS Hodgs.

Cuculus kelungensis Swinh. Ibis, 1863, p. 394.

Cuculus canorus Swinh. (nec Linn.) Ibis, 1863, p. 396; id. P. Z. S. 1863, p. 265.

Cuculus monosyllabicus Swinh. Ibis, 1865, p. 395.

Cuculus striatus Drap.; Swinh. P. Z. S. 1871, p. 395.

Cuculus intermedius Vahl; Shelley, Cat. Birds B. M. xix. p. 252 (1891); La Touche, Ibis, 1898, p. 370.

The Himalayan Cuckoo is a summer-visitor to North Formosa and probably to other hilly parts of the island.

122. CUCULUS POLIOCEPHALUS Lath.

Cuculus tamsuicus Swinh. Ibis, 1865, p. 107.

Cuculus poliocephalus Swinh. P. Z. S. 1871, p. 395.

Swinhoe reports the occurrence of the Small Cuckoo at Tamsui, but the specimens cannot now be traced.

123. †CENTROPUS JAVANICUS Dumont.

Centropus viridis (Scop.); Swinh. Ibis, 1863, p. 392.

Centropus bengalensis (Gmel.); Swinh. (nec Gmel.) P. Z. S. 1871, p. 393; Shelley, Cat. Birds B. M. xix. p. 352 (1891) [spec. *p″–s″*]; La Touche, Ibis, 1895, p. 336; 1898, p. 371.

Centropus javanicus Shelley, Cat. Birds B. M. xix. p. 354 (1891) [spec. f^4–n^4].

This Lark-heeled Cuckoo is resident throughout Formosa.

CYPSELIDÆ.

124. †CYPSELUS PACIFICUS (Lath.).

Cypselus vittatus Jard. & Selby; Swinh. Ibis, 1863, p. 253.

Cypselus pacificus Swinh. P. Z. S. 1871, p. 345.

Micropus pacificus Hartert, Cat. Birds B. M. xvi. p. 448 (1892).

The Siberian Swift visits S.W. Formosa in summer.

125. CYPSELUS SUBFURCATUS Blyth.

Cypselus subfurcatus Swinh. Ibis, 1863, p. 254; La Touche, Ibis, 1895, p. 336; 1898, p. 370.

Swinhoe observed the Malayan House-Swift nesting on Ape's Hill, Takow, in South Formosa. La Touche also saw it in the same locality in November and at Tamsui on the 27th of May.

CAPRIMULGIDÆ.

126. †CAPRIMULGUS MONTICOLA Frankl.

Caprimulgus stictomus Swinh. Ibis, 1863, p. 250; La Touche, Ibis, 1898, p. 370.

Caprimulgus monticola Hartert, Cat. Birds B. M. xvi. p. 547 (1892).

Franklin's Nightjar is resident in Formosa.

ALCEDINIDÆ.

127. *ALCEDO ISPIDA Linn.

Alcedo bengalensis Gmel.; Swinh. Ibis, 1863, p. 260; La Touche, Ibis, 1895, p. 336; 1898, p. 370.

Alcedo ispida Sharpe, Cat. Birds B. M. xvii. p. 141 (1892).

a. ♀. Rinkiho (Lim-ki-po), March 1906.

Iris dark brown; bill reddish-black; feet bright coral-red.

The European Kingfisher is common and resident throughout Formosa.

128. †HALCYON COROMANDUS (Lath.).

Halcyon coromandelianus (Scop.); Swinh. Ibis, 1863, p. 259.

Halcyon coromandus Sharpe, Cat. Birds B. M. xvii. p. 217 (1892).

The Ruddy Kingfisher inhabits the lakes and rivers of the interior of Formosa.

[To be continued.]

VII.—*Notices of recent Ornithological Publications.*

1. '*Annals of Scottish Natural History.*'

[The Annals of Scottish Natural History. Nos. 59 & 60, July and October 1906.]

The first paper on our subject is by Mr. W. Eagle Clarke, who enumerates and remarks upon the rare visitants which occurred at Scottish observation-stations in the first half of 1906. These are the Rustic Bunting, the Desert-Wheatear, the Ortolan Bunting, and an example of the remarkably grey Asiatic race of the Skylark. In the October number Mr. Clarke records a new visitor to Great Britain, namely, the Red-rumped Swallow (*Hirundo rufula*), observed at Fair Isle on June 2nd in a party of Common Swallows and picked up dead some ten days afterwards. An example of this southern species was obtained at Heligoland on May 30th, 1855, and had doubtless overshot the mark on the spring-migration, as in the present case. It may be noted that under the name *H. daürica* Prof. R. Collett has recorded the occurrence of a closely-allied—or perhaps even the same—species at Syd Varanger on May 31st, 1905. Later (p. 236), as the result of a very recent visit to Fair Isle, Mr. Clarke and his companion Mr. Kinnear record, among other rarities, the Scarlet Grosbeak, the Red-breasted Flycatcher, the Little and Ortolan Buntings, the Yellow-browed Warbler, and—for the first time in Scotland—the Reed-Warbler.

Since this was written, Mr. Clarke has exhibited at the British Ornithologists' Club an example of *Phylloscopus tristis* from Suliskerry (26th Sept., 1902), also new to the British avifauna (*cf.* Bull. B. O. C. xix. p. 18). Mr. John

Paterson's careful Report on Scottish Ornithology for 1905 (pp. 140–150, 196–205) contains many other allusions to the birds of Fair Isle, and, judging from the number of acknowledgments for assistance, there can be no lack of co-operation in making returns. Among the interesting records under "Zoological Notes" we notice the southward extension of the breeding-range of the Fulmar Petrel, as well as the nesting of the Grey Lag-Goose in the Tay area.—H. S.

2. *Arrigoni degli Oddi on* Fuligula homeyeri.

[Nuove osservazioni sulla cattura della *Fuligula homeyeri* Baed. nel Veneto. Boll. d. Soc. Zool. Ital. 1906.]

The author writes upon the Diving Duck called *Fuligula homeyeri,* which is generally acknowledged to be a hybrid between the Common Pochard (*F. ferina*) and the Ferruginous Duck (*F. nyroca*), and gives us particulars concerning three specimens of it that have occurred in Northern Italy. He enumerates the examples of this bird known to him in various collections—fourteen in all.

3. *'The Auk.'*

[The Auk. A Quarterly Journal of Ornithology. Vol. xxii. Nos. 3 & 4, July and October 1906.]

Mr. Witmer Stone records his view of a continuous migration of birds during the night of March 27th, when the sky was lighted up by a tremendous conflagration at Philadelphia; the birds—mainly Finches—following a line parallel to the Delaware River, and, in some cases, getting burned on the way. The same author furnishes an important Bibliography and Nomenclator of the Ornithological Works of Audubon (pp. 298–312), and later (pp. 361–368) three unpublished letters of Alexander Wilson, with one from John Abbot to George Ord, written from Georgia in 1814 and specially interesting. Far more important, however, is Mr. Ruthven Deane's second instalment of the correspondence between Audubon and Spencer F. Baird, from 1840 to 1842. Mr. E. S. Cameron, M.B.O.U., contributes a pleasant account of the nesting of the Great Blue Heron (*Herodias alba*) in Montana, with two plates; and Mrs. Irene G. Wheelock describes the breeding-habits of the Green Heron (*Butorides virescens*), with an illustration of the young at the age of one week. The "preliminary sketch" of the "Birds of Louisiana," commenced in the January number by Messrs. Beyer, Allison, and Kopman, is concluded in July, and we now await the List. The unusual abundance of the Snowy Owl during the winter of 1905–6, when over 800 were recorded from Nova Scotia westward to Nebraska and between Manitoba in the north and Missouri in the south, forms the subject of a carefully-compiled paper by Mr. Ruthven Deane. In Western Mexico, Mr. H. H. Bailey landed at San Blas in order to visit the Tres Marias and Isabel Islands; the photographs of the Boobies, Frigate-birds, and Tropic-birds in their breeding-haunts are as good as the descriptions. "A-Birding in an Auto," by Mr. M. S. Ray, is an account of a run down the coast of California from Stockholm to Los Angeles, and back by an inland route, on which the Californian Condor was seen in two localities. Mr. James H. Fleming's account of the Water-birds of Toronto, Lake Ontario, is especially interesting, because the area described "lies directly in the path of a great migratory route equidistant from the Atlantic, the Mississippi and James Bay" [southern end of Hudson Bay]. Mr. C. W. Beebee gives the results of his experiments with a living example of *Larus atricilla* from February to April. He shews (in a manner which is quite convincing to the writer of this notice) that no increase of colour takes place in the individual white feather of winter, and that every feather which is dark slate-coloured in spring starts so from its sheath. He also states that during the moult "the entire sheath of the mandibles peels off; in one case a large piece coming off at once, showing the fresh horn beneath bright carmine in colour." Among the "General Notes" is a record of an Eskimo Curlew (*Numenius borealis*) which came on board the S.S. 'Baltic,' bound for New York, about 2 P.M. on May 26th, 1906, midway between Ireland and

Newfoundland. Although fatigued, "it gave evidence of having eaten within a few hours," perhaps on board some ship going eastward; and it fed heartily on chopped meat and chicken, though it died shortly before Sandy Hook was reached. The incident throws some light on "assisted passages"; though in this case fortune led to the re-conduction of the bird to the Western Hemisphere. We have passed over several papers of local interest, but the remarks of Mr. F. A. Lucas on the authenticated speed of birds in contrast with estimates and calculations may be read with advantage on this side of the Atlantic. Those of us who are interested in the Protection of Birds may well envy the National Association of Audubon Societies the bequest of $100,000 by the late Albert Wilcox, of New York City, who had been a generous benefactor during life. £20,000, saddled with no conditions as to maintaining a library or a museum out of the parish rates (prodigious!). "There is need, however, for further increase of funds, and it is hoped that other bequests may follow."—H. S.

4. '*The Avicultural Magazine.*'

[Avicultural Magazine. The Journal of the Avicultural Society. New Series. Vol. iv. Nos. 10–12, Vol. v. No. 1. London: August to November 1906.]

The most important papers in these numbers are those on the Violet-eared Waxbill (*Estrelda granatina*) by Mr. R. Phillipps, and on the genus *Coturnix* by Mr. D. Seth-Smith, each with a coloured plate. Of the first species—which we should hardly call a "visitor" to this country—a good account is given by the author, and we are glad to be able to inform him, from personal observation in the Bulawayo bush, that the bird is certainly found in considerable flocks in August, and appears to breed there later in the year. Mr. Seth-Smith's notes on monogamy in the genera *Synœcus* and *Excalfactoria* and polygamy in *Coturnix* are a special point in his paper.

Several species are reported as having bred and reared their young in Britain, apparently for the first time. Among these are *Columba tympanistria* (Dr. Butler), *Tachyphonus melaleucus* (Mr. Teschemaker), pl., *Sycalis arvensis* (Mr. Seth-Smith), and *Palæornis magnirostris* (Mr. Boughton-Leigh), while further information is given with regard to the nesting of other forms.

Mr. Newman discusses *Turtur decaocta* (pl.), and proposes to separate the Burmese race as *T. d. xanthocyclus*; Mr. Meade-Waldo gives his experiences with regard to birds on the yacht 'Valhalla' (pl.); Dr. Butler writes on hybrid *Ploceidæ* (col. pl.) and various Passerine forms; Mr. Astley on the food of Nightingales; Mr. Collingwood Ingram on the breeding of Humming-birds; the Duchess of Bedford on foreign birds at Woburn; and Mrs. Johnstone on *Trichoglossus johnstoniæ*.

5. *Berlepsch and Stolzmann on Peruvian Birds.*

[Rapport sur les nouvelles collections ornithologiques faites au Pérou par M. Jean Kalinowski. Par Hans Graf von Berlepsch et Jean Stolzmann. Ornis, xiii. pp. 63–133 (1906).]

In this article the authors continue their account of the extensive collections made in Peru from 1894 to 1899 by Mr. Kalinowski *. After an itinerary, in which the various localities explored by that assiduous collector are described, it is recorded that at Cadena, in the province of Cuzco, in July 1899 M. Kalinowski was shot at by an Italian settler without any provocation and was severely wounded. He was, however, taken care of by some kind Samaritans (English, American, and French), and after a long illness restored to health, after which he returned to his farm at Cadena.

The birds collected by M. Kalinowski are treated in five sections, according to their localities:—

(1) Those from the Department of Ayacucho, Western Peru, 32 species; (2) those from Santa Ana, in the Province of La Convencion, Central East Peru, 133 species; (3) those from the northern part of the Department of Cuzco

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* See Berl. et Stolzm., P.Z.S. 1896, p. 322; and 'The Ibis,' 1901, pp. 716–719.

13 species: (4) those from the valley of Marcapata, Department of Cuzco, 163 species; (5) those from the Department of Puno, South Peru, 60 species.

The following 14 species and subspecies are described as new in this memoir:—

1. Pogonospiza (gen. nov.) mystacalis brunneiceps.
2. Tanagra darwini læta.
3. Basileuterus signatus.
4. Geothlypis canicapilla assimilis.
5. Euphonia laniirostris peruviana.
6. Buthraupis cucullata saturata.
7. Sporophila gutturalis inconspicua.
8. Lophotriccus squamicristatus hypochlorus.
9. Myiozetetes similis connivens.
10. Myiobius nævius saturatus.
11. Nothura maculosa peruviana.
12. Synallaxis curtata debilis.
13. Conopophaga ardesiaca saturata.
14. Calospiza argentea fulvigula.

The type of the proposed new genus *Pogonospiza* is *Pipilo mystacalis* Tacz., which is probably identical with *Buarremon nationi* Sclater, P. Z. S. 1881, p. 485, pl. xlvi.

6. *Brewster's 'Birds of Massachusetts.'*

[The Birds of the Cambridge Region of Massachusetts. By William Brewster. Cambridge, Mass., July 1906. 1 vol. 4to. 426 pp.]

This important work, prepared by one of the best known authorities on North-American Birds, has been long expected, we believe, by his brother ornithologists in the U.S. It forms the fourth number of the Memoirs of the Nuttall Ornithological Club, at whose request the task of writing it was undertaken by Mr. Brewster upwards of ten years ago.

The following extracts from the preface explain the general scope of the work, which is, of course, specially intended for those interested in the Ornis of the Cambridge District:—

"No attempt is made to give full life-histories of the birds. On the contrary I have abstained from saying anything about their habits, songs, &c., save in cases where some mention of these and kindred matters has seemed essential to a clearer understanding of the reasons governing the local occurrence or distribution of certain of the species, or desirable for the purpose of rendering commonplace or otherwise tedious details more attractive. What I have chiefly had in mind has been to state as definitely as possible the times and seasons when each species has been noted, the numbers in which it has occurred at long past as well as in very recent times, and the precise character, and in some instances also the situation, of its favourite local haunts."

In carrying out this plan Mr. Brewster has had the co-operation of a large number of friends, many of whose names are familiar to us, besides the advantage of the labours of previous ornithologists (such as Nuttall, Cabot, and Bryant) who have studied the Avifauna of this district.

The first portion of Mr. Brewster's volume is devoted to a general account of the "Cambridge Region" and its special localities for birds. Then follows an "Annotated List" of the species, according to the arrangement and nomenclature of the American 'Check-list.' The number of species and subspecies recognised as occurring within the Cambridge area is 248. A coloured figure is given of Brewster's Linnet (*Acanthis brewsteri*), founded by Mr. Ridgway on a single specimen shot by Mr. Brewster in 1870 out of a flock of Redpolls. As no other examples of this obscure form have been obtained it is probably a sport or "possibly a hybrid between *Acanthis linaria* and *Spinus pinus*," as now suggested by Mr. Ridgway.

7. *Chapman on the Birds of New York.*

[The Birds of the Vicinity of New York City. Guide Leaflet No. 22. Reprinted from the American Museum Journal. By Frank M. Chapman. New York, 1906. 8vo. 96 pp.]

This guide to the Local Collection of Birds in the Department of Ornithology of the American Museum of Natural History must be found extremely useful by visitors to that establishment, and is based upon a most admirable plan.

The specimens are placed under two headings: firstly, systematic, including groups of permanent, summer, and winter residents, transient and accidental visitors; secondly, seasonal, with groups for every month. Nearly all the birds exhibited have been procured within fifty miles of New York, in a district most favourably situated, that includes in its rich avifauna species from both the Alleghanian and Carolinian areas, which overlap at this point.

An annotated list of the local birds is also given, with a bibliography and an index; while several full-page plates and many text-figures embellish the work, the latter—not always satisfactory—being taken, with one exception, from Coues's 'Key to North American Birds.'

A great amount of useful information is incorporated in the text, especially under the sections devoted to the several months.

8. '*The Condor,*' Vol. viii. Nos. 1–5 (1906).

[The Condor, a Magazine of Western Ornithology. Edited by Joseph Grinnell. Vol. viii. 1906. Santa Clara, California.]

We are glad to say that 'The Condor' has survived the great earthquake and is still "well and lively." The first five numbers of the present year have been duly issued. Mr. Joseph Grinnell is now Editor, and Mr. W. L. Finley and Mr. W. B. Fisher are his associates. The articles naturally refer almost entirely to the birds of the "Far West," but there are some capital photographic illustrations. We may call attention to the pictures of the eyrie of the Golden Eagle (*Aquila chrysaetos*), which "is not now common anywhere, but is yet found in small numbers in the mountainous regions of the west, especially in portions of California." There are some interesting letters from Mr. R. C. McGregor, who has lately shifted his quarters to Manila, and is busily engaged in researches into the rich and varied Ornis of the Philippine Archipelago. There is a complete set of 'The Condor' in the library of the Zoological Society of London.

9. *Cowan on some Birds of New Zealand.*

[Notes on some South Island Birds and Maori Associations connected therewith. By J. Cowan. Trans. New Zealand Inst. 1905, vol. xxxviii. p. 337.]

Mr. Cowan, who is evidently an authority on Maorian folklore, gives us an account of the information on certain birds in the extreme south of the South Island obtained from some of the very few well-instructed natives "that have survived to these days." These stories relate to the Notornis (called by the natives *Takahea*), now nearly, if not quite, extinct, but formerly, it appears, very plentiful, the *Roa* or Apteryx, the migratory Cuckoo (*Eudynamys taitensis*), the Bell-bird, the Mutton-bird, and others, and are well worthy of record.

10. *Dubois on Ornithological Occurrences in Belgium.*

[Nouvelles observations sur la Faune ornithologique de Belgique. Par le Dr. Alph. Dubois.]

Dr. Dubois gives us notes on the occurrences of rare birds in Belgium—*Hierofalco candicans, Turdus obscurus, T. atrigularis, Dryocopus martius*, &c.,—in continuation of former communications on the same subject (*cf.* 'Ornis,' ix. p. 127).

11. *Foerster and Rothschild on Two new Paradise-Birds.*

[Two new Birds of Paradise. By Prof. F. Foerster and the Hon. Walter Rothschild, Ph.D. Issued October 1st, 1906, at the Zoological Museum, Tring. Price 6*d.* 3 pp. 8vo.]

These two "most remarkable birds" were discovered in the mountains of German New Guinea by the "veteran collector Wahnes," from whom particulars as to the locality and altitude are expected.

Astrapia rothschildi Foerster is nearest to *A. nigra,* and *Parotia wahnesi* Rothschild to *P. helenæ,* but both are apparently quite distinct. The specimens were exhibited at a meeting of the B. O. C. on the 17th of October last (see Bull. B. O. C. xix. p. 8).

12. *Hartert's Remarks on Creepers, Titmice, and Reed-Warblers.*

[Some Common-sense Notes on Creepers, Titmice, and Reed-Warblers. By Ernst Hartert. Ornis, vol. xiii. p. 58.]

Dr. Hartert insists on the specific distinctness of the two European Creepers *Certhia familiaris* and *C. brachydactyla*, of which only the former is represented in England. He also gives us some instructive remarks on the Titmice belonging to the groups *Parus cæruleus*, *P. major*, and *P. palustris*, and maintains the specific rank of the "Willow-Tit," "widely spread in England." He likewise comments on the difficulty of distinguishing skins of the two Reed-Warblers *Acrocephalus streperus* and *A. palustris*, although everybody allows "that they are two different species." We confess that we are still sceptical about the so-called *Parus salicarius*, and should like to know what Mr. Saunders will do with it in the next edition of his 'Manual.'

13. *Hellmayr on a rare Bittern.*

[Note on a rare Bittern (*Zebrilus pumilus*). By C. E. Hellmayr. Ornis, vol. xiii. p. 56.]

This note gives much information respecting a rare South-American Bittern (*Zebrilus pumilus*), and seems to prove that the rufous phase of plumage is that of the male bird and the blackish that of the female.

14. *Jourdain on Hybrids of the Black-Game and Pheasant.*

[On the Hybrids which have occurred in Great Britain between Black-Game and Pheasant. By the Rev. Francis C. R. Jourdain. Zoologist, 1906, pp. 321–330, pl.]

In this article Mr. Jourdain discusses the records of the hybrids cited, and considers fifty of them to be authenticated. Only some four instances of this cross seem to be known from the Continent. One of the records from Derbyshire is corrected.

15. *Lönnberg on the Birds of the Island of South Georgia.*

[Contributions to the Fauna of South Georgia.—I. Taxonomic and Biological Notes on Vertebrates. By Einar Lönnberg. With 12 plates and 7 figures in the text. Kongl. Svenska Vet.-Ak. Handl. Band 40, no. 5. Upsala and Stockholm, 1906. 104 pp.]

This memoir gives an account of the birds collected in the Antarctic island of South Georgia by Mr. Erik Sörling, a Taxidermist of the Natural History Museum of Stockholm, who was sent out to join Capt. Larsens's whaling-station on that island, and remained there from November 1904 to September 1905. The bird-life of South Georgia had been previously well investigated by the German Expedition of 1882–3 and the Swedish Expedition of 1902, but Sörling's collections and observations have added at least one species to the list of breeders and have supplied us with much fresh information. His field-notes are ample and of much interest.

The Avifauna of South Georgia is now known to consist of about 29 species, including occasional stragglers. The only Passerine bird is a Pipit (*Anthus antarcticus*). The Penguins obtained by Sörling were *Pygoscelis antarctica, P. papua*, and *Aptenodytes patachonica*, all of which breed in the island, *P. papua* being the most common. The Cormorant of South Georgia is designated as a new subspecies under the name *Phalacrocorax atriceps georgianus*.

16. *McGregor on Birds from Mindoro, Philippines.*

[Notes on Birds collected in Mindoro and in small adjacent Islands. By R. C. McGregor. Philipp. Journ. of Sc. vol. i. no. 6. Manila, 1906.]

The scientific papers of the "Bureau of Science" of the Philippine Government are now collected together and published as 'The Philippine Journal of Science.' The sixth number of vol. i. of this Journal, which we have lately received, contains an ornithological paper by Mr. McGregor, of which we have given the title above. It is an account of the specimens collected by Dr. E. H. Porter on the coast of Mindoro and on some small adjacent islands, amongst which are examples of 13 species not previously recorded from Mindoro. An interesting occurrence is that of White's Thrush (*Turdus varius*), of which a male was obtained at Bulalacao, Mindoro, on December 7th, 1905. Previous records of this species in the Philippines have been made by Tweeddale (Manila) and Whitehead (Lepanto, Luzon).

17. *Martorelli on the Birds of Italy.*

[Gli Uccelli d' Italia, con 236 Fotoincisioni da acquarelle e fotografie originali dell' autore e con 6 Tavole a colori del medesimo. Por Prof. Giacinto Martorelli. 1 vol. 4to. 678 pp. Milano, 1906.]

Count Arrigoni degli Oddi's stout little 'Manual of the Birds of Italy,' noticed in 'The Ibis' for 1904, p. 461, is followed by the larger and in all respects more important quarto written by our Foreign Member, Professor Martorelli. This contains descriptions of 463 species recognised as having occurred in Italy, and it may at once be said that wanderers have to shew a pedigree of good repute before they attain promotion from mere mention in a foot-note to the honour of a numeral. The systematic arrangement is that which has been adopted in the 'Hand-list of Birds in the British Museum,' and begins with the Galliformes, working upwards to the Passeres. The descriptions of the species, their general distribution, and their special localization in Italy are all adequately given; while on occasions where an illustration could be of any use there is either a full-page black plate or a figure in the text. These 236 illustrations are, as a rule, most spirited, and those of the Grey Plover, Glossy Ibis, Great White Heron, Bittern, immature Flamingo, Griffon and Egyptian Vultures, Kite, and Marsh-Harrier seem particularly successful; that of the Marbled Duck also deserves mention because of the unusually correct delineation of its crest. Of the six coloured plates those of the Goosander and the Golden Oriole are pre-eminent, and then comes, in the Appendix, the crowning glory of the book in pl. vi., with the portrait of the young Wedge-tailed Gull (*Rhodostethia rosea*) which, as mentioned in 'The Ibis' for 1906, p. 394, was obtained early in January of that year in the bay of Cágliari, Sardinia. That island maintains its reputation for giving asylum to interesting species, such as the Barbary Partridge, Flamingo, Eleanora Falcon, Audouin's Gull (misspelled Audo*n*in by a very common printer's error), the Black Vulture, though in decreased numbers, and other conspicuous birds; while it contains the only breeding-place of the White-tailed Eagle known to us in the western half of the Mediterranean, two nestlings having been sent to Prof. Martorelli by a friend at Oristano. The records of the occurrences of many arctic and subarctic species in Italy will surprise some of our readers; but the author's style is so clear that the language need give them little difficulty, while in any case the results will repay the trouble. Altogether this is an excellent book.—H. S.

18. *Palmer on Game Protection.*

[Federal Game Protection: a Five Years' Retrospect. Game Protection in 1905. (Reprints from Yearbook of [U.S.] Department of Agriculture for 1905.) By T. S. Palmer. Pp. 541-562, 611-617.

Game Laws for 1906. A Summary of the Provisions relating to Seasons, Shipment, Sale, and Licences. By T. S. Palmer and R. W. Williams, Junr. U.S. Department of Agriculture. Farmer's Bulletin, No. 265. 54 pp.

Directory of Officials and Organizations concerned with the Protection of Birds and Game, 1906. By T. S. Palmer. U.S. Department of Agriculture. Bureau of Biological Survey, Circular No. 53. 16 pp.]

Game protection has of late years been receiving great attention in the United States, and the three pamphlets under consideration shew that the efforts of its promoters, far from being relaxed, are from year to year redoubled, and are, fortunately, meeting with great success both as regards the Federal Government and the several States. Special areas continue to be set apart for the preservation not only of big game but of various species of birds, while the different States are coming more into line in this matter, and are, one after the other, appointing Game-wardens. New laws are passed, the old are more strictly enforced with better effect, and such important matters as close seasons, hunting permits, and limited "bags" are receiving serious consideration. Since the first General Federal Game-Law in 1900 much has been done, and the scope of Protection has been widened to include birds' eggs and such species as are used for millinery purposes — in the latter case with especially gratifying results. Game-birds are constantly imported to increase the stock, the Capercaillie, Black Game, and so forth have been introduced in a way unknown in other countries, while the Secretary of Agriculture is not only entrusted with the supervision of all imported species, with the view of protecting Agriculture from pests, but is empowered to collect and publish all information likely to be useful.

The annexed maps give an excellent idea of the action of the various States, the spread of the doctrine of preservation, and the different Reserves.

19. *Parrot on the* Corvidæ.

[Zur Systematik der paläarktischen Corviden. Von Dr. C. Parrot. Jena: 1906, pp. 257–294.]

This article, reprinted from the 'Zoologische Jahrbücher,' contains an account of the Palæarctic Corvidæ (namely *Corvus cornix, C. corone, C. macrorhynchus, C. m. japonensis, C. m. levaillanti, C. corax corax, C. c. umbrinus,* and *C. c. cacolotl*) as understood by the author. The whole question of their status is brought under discussion as well as their points of difference and relations to kindred forms.

20. *Rey's Eggs of Middle European Birds.*

[Die Eier der Vögel Mitteleuropas. Von Dr. Eugène Rey. Band i. Text. Band ii. Tafeln. Kohler: Gera-Untermhaus, 1905. Price (abt.) £3.]

Dr. Rey's work on the eggs of the Birds of Middle Europe, of which we noticed the commencement in 'The Ibis' for 1900 (p. 212), is now complete in 30 parts, and, as finally arranged, forms two solid octavo volumes, the first of which contains the text (682 pp.) and the second the plates (128 in number). We spoke favourably of this book in our previous notice, and need not repeat what was there said. It is certainly a cheap work for its price, and will be found convenient for reference by our egg-collecting friends. The letterpress is in some cases rather concise, but contains most of the necessary particulars.

21. *Salvadori on new Birds from Uganda.*

[Nuove specie di Uccelli. Boll. Mus. Torino, xxi. No. 542, 2 pp.]

Count Salvadori sends us an article on *Bycanistes aloysii*, n. sp. (near *B. subquadratus* Cab.), from Entebbe; *Anthoscopus roccatii*, n. sp., also from Entebbe: *Lagonosticta ugandæ*, n. sp. (near *L. congica*), from Fort Portal; and *Xylobucco aloysii* (near *X. consobrinus*), from the neighbourhood of Entebbe. Of each of these one example only was brought home by the Expedition of the Duke of Abruzzi to Ruwenzori.

22. *Schillings's 'Flashlight and Rifle.'*

[With Flashlight and Rifle, a Record of Hunting Adventures and of Studies in Wild Life in Equatorial East Africa. By C. G. Schillings. Translated by Frederic Whyte, with an Introduction by Sir H. H Johnston, G.C.M.G., K.C.B. 2 vols. 8vo. Hutchinson & Co.: London, 1906.]

This is a translation into English of a work which we have already noticed (see 'The Ibis,' 1906, p. 205) and commended to our readers. It is specially interesting for the numerous pictures, some 300 in number, "taken by day and night from the author's untouched photographs." Most of them, as was to be expected, relate to "large game" and other mammals, but some portray birds. Sir Harry Johnston's "Introduction" is interesting and amusing, and will, we trust, strengthen the present movement for the protection of animal-life in our African Colonies.

An appendix to the second volume contains a "Synopsis" of Herr Schillings's collection of Birds, written by Dr. Reichenow. We are told that it comprises more than a thousand skins, which are referred to 355 species.

23. *Sharpe on the Ornithological Literature of* 1905.

[Zoological Record, Vol. xlii. 1905. III. Aves. By R. Bowdler Sharpe, LL.D., &c. 88 pp. Price 6*s*. Sept. 1906.]

After a very short preface, which records the completion of three important German works (the new edition of 'Naumann,' Reichenow's 'Vögel Afrikas,' and Rey's 'Eier der Vögel Mitteleuropas'), the titles of the ornithological publications of 1905 are given in alphabetical order. In many cases the Families, for which reference to the Systematic division should be made in order to obtain further particulars, are indicated. The total number of "titles" in the List is 742, the corresponding number n the 'Record' for 1904 was 679.

The "Subject-Index," which forms the second portion of the 'Record,' refers to the works on each subject by the numbers attached to them in the list of "titles."

In the third ("Systematic") division of the 'Record,' which extends to no less than 48 pages, the information acquired on each group of birds in 1905 is collected together, and all is arranged in systematic order according to the author's well-known classification. It thus becomes easy for the student of any particular group to ascertain what additions and corrections have been made to our knowledge of it during the year in question. We need hardly point out that this is of great assistance to the working ornithologist.

We are pleased to be able to state that it has been settled that from the beginning of this year (1906) the 'Zoological Record' of the Zoological Society of London (of which Dr. Bowdler Sharpe's article forms a section) shall be amalgamated with the zoological portion of the International Committee's 'Catalogue of Scientific Literature,' to which we have called attention on a former occasion (see our remarks in 'The Ibis,' 1904, p. 645). The result will be that the waste of money and energy caused by having the same piece of work done by two different sets of Recorders and separately published will be saved by this praiseworthy arrangement.

24. *Sharpe and Chubb on a new Tree-Partridge.*

[On a new Species of *Arboricola*. By R. Bowdler Sharpe and Charles Chubb. Ornis, xiii. p. 133.]

Arboricola graydoni, sp. nov., from Borneo, "has hitherto been called *A. charltoni*, but seems to be distinct," and is named after Mr. P. N. Graydon, who sent the specimen to the British Museum from the Lamag Estate in Sandakan.

25. *Warren on the Birds in the Natal Museum.*

[First Report of the Natal Government Museum. Year ending 31st December, 1904. Pietermaritzburg, 1906.]

The new Director, Dr. Ernest Warren, is able to give a good account of the progress of the Natal Government Museum since its removal into its present quarters in 1894. He devotes the first portion of his Report to a description of the various rooms and of the collections which they contain, and gives many illustrations of the different departments. The second portion of the Report contains catalogues of some of the collections, amongst which is one of the "Birds, Birds'-nests, and Eggs." The mounted specimens of Birds are arranged in one series, according to Dr. Bowdler Sharpe's classification, and consist principally of South-African and British specimens. It is, no doubt, necessary to have a more or less complete General Collection, but the Natal Museum should, in our opinion, also have a special series of the native birds of the Colony either mounted or in skins, and this we hope will be provided in due course.

Dr. Warren has also started a new Journal ('Annals of the Natal Government Museum'), of which we have seen the first number (vol. i. part i.). "It will deal almost entirely with South-African matters—Geological, Zoological, Botanical, and Ethnological."

VIII.—*Letters, Notes and Extracts.*

We have received the following letters addressed "To the Editors of 'The Ibis'" :—

Sirs,—As you ask me for any personal evidence that I can give as to the habits of the Honey-guide, I send you the following particulars :—

In September 1905 I made the journey from Umtali to Melsetter, walking along the beaten track, accompanied by seven or eight natives. At one place I saw a small bird about the size of a Lark apparently following my party, and occasionally perching on the trees near the road. I asked one of the natives what bird it was, and he told me that its native name was "Inhalalala," and said that it was the bird that shewed people where there was honey. I stopped the natives and told them that I wished to see the honey found. The bird immediately started into the bush, and I went with two natives to follow it. After we had walked for about half a mile into the bush, I saw it perch on a tree in which there was a hole in a broken branch. The natives now collected some dry grass and set it on fire, and, ascending the tree, thrust it into the hole in order to suffocate the bees. After this they proceeded to enlarge the hole and to extract the honey. The honey consisted of four or five dark combs, which the natives put into a bit of a broken cooking-pot. A portion of the honey-comb was left on an adjacent branch of the tree for the bird, which returned to it before we had got far away.

I am, Sirs, yours &c.,
A. L. SCLATER.

Helvetia, South Melsetter,
Rhodesia,
June 1906.

SIRS,—I have translated for a Russian sporting periodical ('Psovaia e Rujeinaia Okhota') Mr. Einar Lönnberg's description of *Tetrao urogallus lugens* from the April number of 'The Ibis' (1906, p. 317). Now the well-known taxidermist of Moscow, Mr. Th. K. Lorenz, gives (in No. 22 of the above-named periodical) his account of this bird. As he has been engaged during the last quarter of a century in collecting materials concerning the palæarctic Gallinæ, and as many railway-wagon-loads of Siberian and Russian game-birds pass yearly through his hands (Moscow being the centre of this trade), his opinion is of some value.

Mr. Lorenz informs me that he has had through his hands scores of Capercaillies of the "*lugens*" form from different parts of Russia: North (Governments of Arkhangel and Vologda), East (Perm), and Central (Vladimir, Nijny-Novgorod, &c.). Some were young, with very soft bones, some quite old. But *all* of them had the sexual organs quite irregularly developed—not quite masculine nor feminine, yet not clearly hermaphroditic, so that they might be called asexual specimens.

Mr. Lorenz adds that such anomalous specimens were considered by Dr. A. B. Meyer to be hybrids between *Tetrao urogallus* (male) and *Lyrurus tetrix* (female): but Mr. Lorenz denies that such hybrids exist, and thinks that Dr. Meyer made an erroneous conjecture, not having examined the state of the sexual organs of his specimens.

Perhaps you will find these remarks sufficiently interesting for your readers.

Yours &c.,
S. A. Buturlin.

Wesenberg, Esthonia, Russia,
October 13th, 1906.

Sirs,—During this winter I am camping out in one of the largest areas of untouched forest-land that still remain in New Zealand. Unfortunately for its birds a great slice of 3000 acres is being felled by the owner this season, and I am engaged in superintending the felling.

The altitude is from 2000 to 3000 feet, and the position is in the middle portion of the eastern extension of the North Island which ends in East Cape, and is some fifty miles from the coast. I may say that other owners in the locality are felling trees, and next year I expect that a still larger area will go down. This will seriously affect the feathered inhabitants, and I have taken notes of the birds that I have observed here.

My daily visits to different gangs of men bring me in touch with many of our rarest birds. *Miro australis* and *Clitonyx albicilla* greet me almost every day, as does the Bell-bird (*Anthornis melanura*). The Parrot family are exceedingly abundant and *Glaucopis* is quite common. About our scrap-heap at the galley-door the Rifleman (*Acanthidositta chloris* or *A. citrina* ?) hunts for food, and its "chit"-like call (which resembles that of an insect rather than that of a bird) is to be heard all through this heavily-timbered country.

If they are likely to prove acceptable, I propose to forward to you some notes on the birds that I have observed here, and thus give ornithologists an idea of the scarcity of bird-life even in the wildest of the New Zealand forest-districts in the present day.

I am, Sirs, yours &c.,
J. C. McLean.

Te Karaka, Gisborne,
New Zealand.
July 29th, 1906.

[We shall be glad to receive Mr. McLean's notes. See his former contributions in 1889, 1892, and 1894.—Edd.]

Sirs,—I have been greatly interested in reading of the occurrence of *Totanus melanoleucus* in the Scilly Islands (Bull. B. O. C. xix. p. 7). This makes, I think, the eighth species of American Wader obtained in those islands, some of which have occurred more than once; while if the counties of Devonshire and Cornwall be added, we shall have a list of eleven species of American Waders that have occurred on these coasts, comprising a total of twenty-four individuals. Several of these species have also reached the coasts of Sussex and Kent. Besides the examples recorded from time to time, many others must have been overlooked. Surely this is a most significant fact, and one that should cause British ornithologists to receive the occurrences of American birds other than Waders (such as *Turdus migratorius* and *Dendrœca æstiva*) with less suspicion than has hitherto been the case.

Personally I cannot believe that a quarter of the number of American birds recorded in the British Islands can have received "assisted passages." Such a thing as an "assisted passage," for Waders at least, is an impossibility, as these birds, apart from the fact that they seldom settle on ships, could not obtain any food by doing so, and would surely die long before the ship reached England or Ireland.

On the other hand, that they set out from America with the *intention* of proceeding eastward is quite obvious: how otherwise is the presence of so many of these birds on the east coast of England to be accounted for? It seems most unlikely that they would make their way round the coast and turn *northward* on reaching Dover.

As time goes on and more interest (*if possible*!) is taken in these so-called "stragglers," I feel convinced that, provided there are a sufficient number of observers on the west coasts of Ireland and England, many species of American birds will be found to arrive on those coasts every autumn. This is, of course, chiefly supposition, though it is borne out somewhat by facts; and the question may well be asked—Why do these American birds migrate eastward? But it might also be asked, why does Richards's Pipit cross Asia and appear in such numbers on Heligoland?

I am, Sirs, yours &c.,
Michael J. Nicoll.

Zoological Gardens,
Giza, Egypt,
November 9th, 1906.

Sirs,—In the last number of 'The Ibis' (1906, p. 704), under the heading *Tringa subarquata,* Mr. M. J. Nicoll writes as follows:—"The example obtained (a female) was just assuming the breeding-plumage *by moult,* but the new feathers on the mantle are *black* with no sign of any rufous on them. This colour on these feathers must therefore be due to an infusion of colouring pigment or some other form of *colour-change,* as it is not possible that the breeding-plumage could be assumed by a *double moult.*"

The conclusion reached by Mr. Nicoll, whether it was based upon this single specimen or upon an examination of a larger number, is not borne out by the following facts:—

(1) A number of skins of the Curlew-Sandpiper shot by myself in Spain in the months of April and May, and others in the British Museum, collected in spring in various countries, have (*a*) in the males all the new feathers on the

mantle in whatever stages of growth they may be, even when only just breaking from the sheath, brilliantly coloured with red; and (*b*) in the females, in many cases, feathers on the mantle in the same condition, except that the red colouring is not usually so brilliant as in the males.

(2) Mr. Nicoll's specimen (which I have examined) has not completed its moult, and new rufous-marked feathers would, I think, have grown subsequently if the bird had lived. This is the more probable because there are two or three feathers on the mantle marked with rufous, which possibly escaped Mr. Nicoll's observation owing to their being covered by the long fringes of other feathers.

(3) Like that of many other Waders, especially in the female birds, the spring-moult of the Curlew-Sandpiper is often arrested for a period, and is then resumed, so that a partially-moulted bird which shews no moult in progress may subsequently grow more summer-feathers and lose more winter ones.

(4) The female Curlew-Sandpiper, although sometimes attaining almost the brilliancy of the male in summer-plumage, is more often much less vividly coloured and not infrequently has no rufous colouring on the mantle. A female shot August 12th is an example; it is beginning its autumnal moult, and the old summer-feathers on the mantle are marked with black and have no more red than Mr. Nicoll's bird, which would be exactly like it when the grey edgings of its new feathers were worn off.

To shew the danger of basing a conclusion as to the processes of moult upon a few specimens, I may mention that a female Curlew-Sandpipers in my own collection and four others in the British Museum, taken in the months of May, June, and July, are in various stages of moult, but the new feathers are like the old winter-feathers. In other words, these birds have for some reason—connected, no doubt, with the condition of the bird—failed to grow any proper summer-feathers, but have grown new winter-feathers instead. Mr. Nicoll's bird is not in this case, but is growing summer-feathers marked with black but not with red—a plumage which forms, as I have shown above, in some cases the full summer-dress of a female Curlew-Sandpiper.

Yours &c.,
Harry F. Witherby.

11 Hereford Mansions, Hereford Road,
London, W.,
November 29th, 1906.

The following letter from Mr. D. Carruthers to Sclater is dated "Entebbe, Uganda, Sept. 6th, 1906":—

"As our expedition has now finished its work on Ruwenzori, and I am just starting off on another expedition, I write to tell you of my plans.

"We effected a complete circuit of the whole range of Ruwenzori and made permanent collecting-camps at different points. On the western side we could not do much on the mountains because of hostile native tribes, but we were there long enough to see that there was not much different from what we had already got on the eastern side. We passed through a bit of the Congo Territory on our journey, and saw that there was a great deal of work yet to be done in those parts. So two members of our party are going back there, namely Messrs. Woosnam and Dent, while Mr. Wollaston and I are preparing to make a journey across to the West Coast. This will take us about seven months, and we ought to get a valuable collection on the way.

"Our route will take us across Uganda to Lake Albert Edward and thence south to Lake Tanganyika, while on the way we shall make a special exploration of the great volcano situated at the north end of Lake Kivu. We shall then strike west until we reach the Congo waters, and follow that river down to its mouth. We shall cover a large bit of country and ought to get good results. If, however, Woosnam and Dent also return home *viâ* the Congo Free State, they intend to take a line much further north than ours. Our combined collections ought to be thoroughly illustrative of the Fauna of the Congo Basin.

"I shall devote myself to the birds and mammals, and Wollaston will collect the plants, butterflies, and beetles.

Our collection up to the present includes in all 2665 specimens of birds and mammals.

"I am now in Entebbe preparing for the journey, and we hope to start in a few days."

Report on the British Museum, 1906.—The Parliamentary Report on the British Museum for 1906 contains an account of the accessions to the Collection of Birds made during the year 1905, which were 13,834 in number. The following acquisitions are stated to be worthy of special notice:—109 birds from the West Indies, presented by Mr. D. A. Bannerman; 162 birds from British Central Africa, presented by Sir Alfred Sharpe, K.C.B.; 52 birds from South-west Australia (including examples of 5 species new to the Collection), presented by Dr. Bernard Woodward; 10 birds from the Azores, presented by the Ponta Delgada Museum; 745 birds from Dr. Sclater's collection, purchased; 15 birds from the Belgian Congo, presented by Colonel J. J. Harrison; 98 eggs from Australia, presented by Mr. A. J. North; 64 birds from Wales and Ireland, presented by Mr. W. R. Ogilvie-Grant; 1279 birds and 868 eggs from Egypt and other countries, bequeathed by the late Mr. Edward Cavendish Taylor; 322 birds from Japan, presented by His Grace the Duke of Bedford, K.G.: 335 birds from the Kauri-Kachin District and 1260 birds from Mount Victoria, Chin Hills, presented by Lt.-Col. Rippon; 72 birds from the Tian-Shan Mountains, presented by Mr. A. B. Bayley Worthington; 417 eggs from British East Africa and Uganda, purchased; 208 birds from the Chindwin Hills, presented by Capt. A. Mears; 88 birds from the Syrian Desert, collected by Mr. D. Carruthers, purchased: 906 birds and 715 eggs from Paraguay, collected by Mr. W. Foster, purchased; 954 mounted birds from various localities, presented by Lord Tweedmouth; 416 birds from South Tibet, presented by Capt. H. J. Walton, I.M.S.; 232 birds from Benguela, collected by Dr. W. J. Ansorge, purchased; 236 birds from Apo Volcano, Mindanao, Philippines, including the types of

7 new species and 19 species new to the Collection, collected by Mr. W. Goodfellow, purchased; 450 birds from the Wagga Mountains, Somali-land, collected by Mr. G. W. Bury, purchased; 450 birds, mostly from the Canary Islands, presented by Mr. E. G. B. Meade-Waldo; 374 birds from S.W. Australia, collected by Mr. T. Shortridge, presented by Mr. W. E. Balston; 396 birds from Persia, collected by Mr. R. B. Woosnam, presented by Col. Bailward; 326 birds from Cameroons, West Africa, collected by Mr. G. L. Bates, purchased; and 18 Silver Pheasants from Upper Burma, received in exchange from the Bombay Natural History Society.

The chief points in the progress made with the General Collection of Birds are described in the Report as follows:—

"Considerable progress has been made with the remounting of the British Birds for the pier-cases in the Pavilion and among the series in the General Gallery.

"Descriptive printed labels have been placed in all the cases containing the nesting series of British Birds, and framed tablets, shewing the classification adopted, have been placed at intervals in the Gallery. Progress has been made with the Osteological Collection, and a large number of the eggs of the species included in Volume V. of the 'Catalogue of Birds' have been incorporated.

"The arrangement and cataloguing of the skeletons of the Tracheophone Passeres, Pteroptochidæ, Conopophagidæ, Formicariidæ, and Dendrocolaptidæ have been proceeded with.

"The collection of birds in spirits has also been overhauled, but cannot be perfectly arranged until better accommodation has been provided.

"A case illustrative of the parasitic habit in birds has been installed in the North Hall, near the one containing eggs of the Common Cuckoo. In the same neighbourhood have been placed some photographs illustrating the manner in which young Cuckoos eject the rightful occupants of the nest they usurp, and also a label describing the nesting-habits of the Cuckoos."

New Expedition to Katanga.—Mr. S. A. Neave, of Magdalen College, Oxford, of whose travels and collections in North-east Rhodesia we gave a short account in our last number ('Ibis,' 1906, p. 740), has arranged to accompany another expedition which is shortly leaving for Northern Rhodesia, and hopes to continue his ornithological and other zoological work in that country. The chief object of this expedition is to explore the Katanga Copper District in the Congo Free State, and thence it will probably pass along the water-parting of the Congo and Zambesi Rivers towards the Angola frontier, following more or less the line of the proposed new railway. This ought to be a very interesting country to the zoologist, its fauna being as yet very little known.

Mr. Neave's account of the birds which he collected in North-eastern Rhodesia has gone to press, and will be shortly published in the 'Notes' of the Manchester Museum.

Canon Tristram's last Collection of Birds.—We learn from 'Science' that the Academy of Natural Sciences of Philadelphia has acquired the *last* Collection of Birds made by the late Canon Tristram, numbering some 7000 skins and representing upwards of 3000 species. It will be recollected that Canon Tristram's original Collection (of 20,000 specimens) was acquired by the Free Public Museums of Liverpool in 1896 (see 'Ibis,' 1906, p. 605), immediately after which, we believe, Canon Tristram began collecting again.

The Tschusi Collection of Palæarctic Birds.—This valuable collection, probably the most complete of its kind on the Continent, has recently been acquired by the Vienna Museum of Natural History. It consists of about 6000 beautifully-prepared skins, and has been accumulated during the last thirty years by one who had a clear understanding of the great importance of well-ascertained localities. Nearly every species of the Western Palæarctic Region is represented by series of specimens illustrating its distribution, as well as its individual and geographical variation, in a full and satisfactory manner. The Collection is particularly rich in birds from various parts of the Austrian Empire, many of which were collected by Ritter von Tschusi himself. The genera *Cinclus*, *Ruticilla*, *Budytes*, *Motacilla*, *Anthus*, *Linaria*, *Lanius*, and *Nucifraga* are especially well represented. The gem, however, is a very full series of the two species of Marsh-Tits (*Parus palustris* and *Parus montanus*) from all parts of their range. The types of the forty-two geographical forms lately described by Ritter von Tschusi are another important feature in the Collection.—[C. E. H.]

New "British Birds."—The number of stragglers from "foreign parts" recorded as occurring in these Islands seems to be decidedly on the increase, owing mainly, we suppose, to the careful look-out now kept for them by the increasing number of observers, especially on our southern coasts. Without including "subspecies" and "doubtfuls," no less than fourteen additional species may now be registered as "occasional visitants" to the British Islands. Their names are given in the subjoined list, which has been kindly revised for us by Mr. Howard Saunders. It will be observed that eleven of them are Palaearctic species, and that only three are of American origin.

1. *Turdus fuscatus* (Bull. B. O. C. xvi. p. 45).
2. *Pratincola maura* (Bull. xvi. p. 10).
3. *Phylloscopus tristis* (Bull. xix. p. 18).
4. *Cettia sericea* (Bull. xiv. p. 84).
5. *Lanius nubicus* (Bull. xvi. p. 22).
6. *Hirundo rufula* (Bull. xix. p. 18).
7. *Chrysomitris citrinella* (Zool. 1905, p. 71).
8. *Montifringilla nivalis* (Bull. xv. p. 58).
9. *Emberiza cia* (Bull. xiii. p. 38).
10. *Emberiza aureola* (Bull. xvi. p. 10).
11. *Junco hyemalis* (Irish Nat. xv. p. 137).
12. *Tringa bairdi* (Bull. xi. p. 27).
13. *Totanus melanoleucus* (Bull. xix. p. 7).
14. *Puffinus kuhli* (Bull. xvi. p. 71).

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27. 'Aquila.' (1906.)

28. 'Avicultural Magazine.' (Vol. v. No. 5.)

29. 'Bird-Lore.' (Vol. viii. Nos. 7, 8; ix. No. 1.)

30. Bradford Natural History and Microscopical Society. (Recorders' Reports for 1906.)

31. 'Cassinia.' (No. x. 1906.)

32. 'Emu.' (Vol. vi. Pt. 3.)

33. HALL. Glimpses of Australian Bird-life. (Melbourne, 1906.)

34. Hastings and East Sussex Natural History Society. (12th Annual Rep.)

35. HERMAN. Remarques sur les Notes de M. le Dr. Quinet. (Budapest, 1906.)

36. HERMAN. The Ibis and Ornithophænology. (Budapest, 1906.)

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39. NEWTON. Ootheca Wolleyana. (Part iv. 1907.)

40. 'Proceedings of the Indiana Academy of Science.' (1905.)

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NINTH SERIES.

No. II. APRIL 1907.

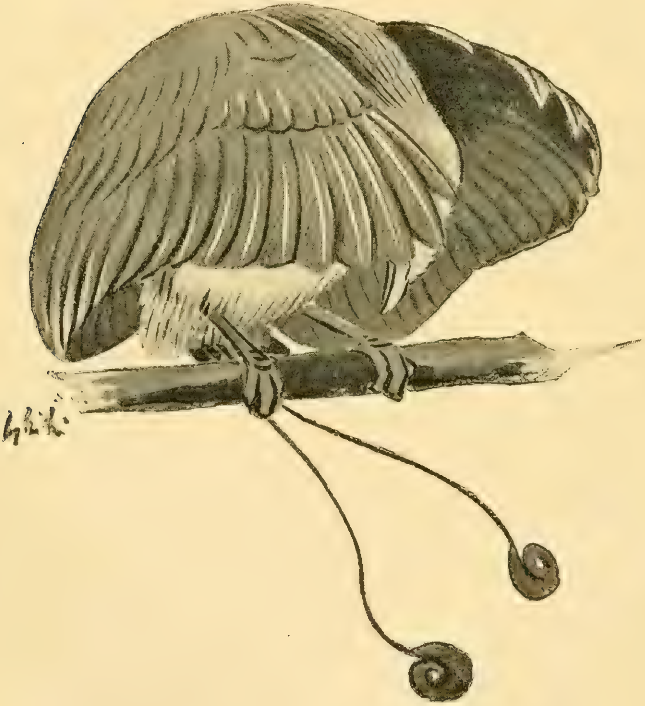
IX.—*On the Display of the King Bird-of-Paradise* (Cicinnurus regius). By Sir William J. Ingram, Bt.

(Plate V.)

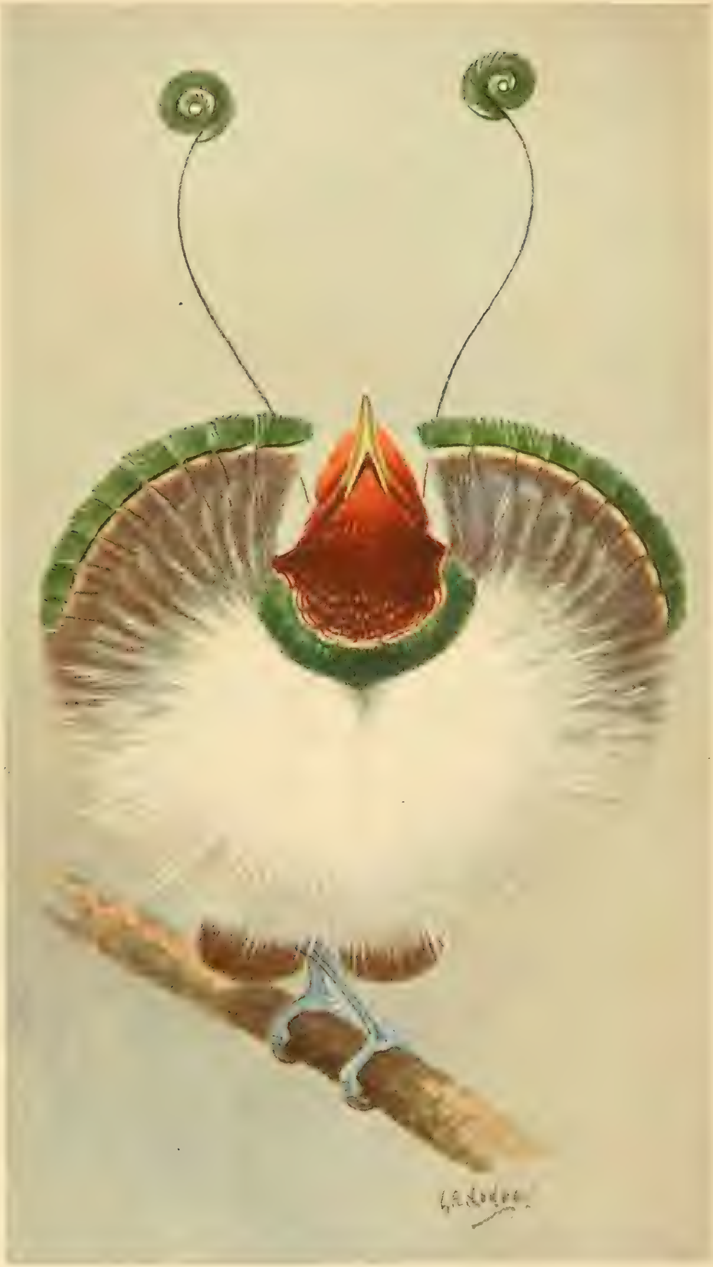
Although the wonderful displays of the Greater and Lesser Birds-of-Paradise have already been described (*cf.* Ogilvie-Grant, Ibis, 1905, p. 429), I believe that up to the present it has never been the good fortune of any collector or ornithologist to witness the extraordinary love-song and dance of the King-Bird (*Cicinnurus regius*). I have for some time had in my possession a fine male of this species, and on many occasions have been able to see him go through his astonishing display. My bird was brought from New Guinea (Aru Islands) along with several other Birds-of-Paradise, of which, unfortunately, all but one were males. They arrived in fair condition—seventeen examples of *Paradisea apoda*, one of *P. minor*, and two males and one female of the King-Bird. I had the bad luck to lose on the day of their arrival the female and one male of the last-named species. The survivor, however, rapidly became accustomed to his new quarters, a cage about thirty inches in length and height, and eighteen inches in breadth. In this he has gone through his moult, casting first of all his long tail-wires tipped with spirals of iridescent green. He commenced moulting in January, and regained his brilliant plumage by the middle of March, since which time he has remained in the most perfect condition.

It was not until April that we first noticed any signs of a wish to display, and then only on one or two occasions, with many days' interval between. On these occasions he gave only a single performance—but now in August we can get him to give us *encore* after *encore* any day that we wish. We have found that to place the bird near a window which is close to some mulberry-trees, and throws a reflected green light on the cage, is a sure means of inducing him

Text-fig. 8.



The King Bird-of-Paradise. (First stage of display.)



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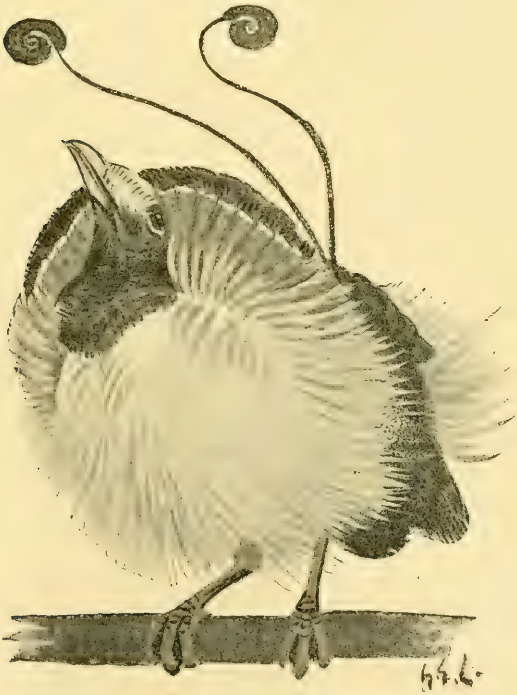
THE KING BIRD-OF-PARADISE

(In full display).

to give a performance—maybe the green shade reminds him of his former home in the depths of a tropical forest.

He always commences his display by giving forth several short separate notes and squeaks, sometimes resembling the call of a Quail, sometimes the whine of a pet dog. Next he spreads out his wings, occasionally quite hiding his head (text-fig. 8, p. 226); at times, stretched upright, he flaps them, as if he intended to take flight, and then, with a sudden movement, gives himself a half-turn so that he faces the spectators, puffing out his silky-white lower feathers (Plate V.). Now he bursts out into his beautiful melodious warbling song, so enchanting to hear but so difficult to

Text-fig. 9.



The King Bird-of-Paradise. (Full display.)

describe. Some weeks ago I was crossing a meadow and heard the song of a Skylark high up in the heavens and I exclaimed at once, "That is the love-chant of my King-Bird." He sings with a low bubbling note, displaying all the while his beautiful fan-like side-plumes, which he opens and closes, in time with the variations of his song. These fan-plumes can only be expanded when his wings are closed, and during this part of the display he closes his wings and spreads out his short tail, pressing it close over his back so as to throw the long tail-wires over his head, while he gently swings his body from side to side. The spiral tips of the wires look like small balls of burnished green metal, and the swaying movement gives them the effect of being slowly tossed from one side to the other, so that I have named this part of the display the "Juggling" (text-fig. 9, p. 227). The swaying of the body seems to keep time with the song, and at intervals, with a swallowing movement of his throat, the bird raises and lowers his head. Then comes the finale, which lasts only for a few seconds. He suddenly turns right round and shews his back, the white fluffy feathers under the tail bristling in his excitement; he bends down on the perch in the attitude of a fighting cock, his widely opened bill shewing distinctly the extraordinary light apple-green colour of the gullet, and sings the same gurgling notes without once closing his bill, and with a slow dying-away movement of his tail and body. A single drawn-out note is then uttered, the tail and wires are lowered, and the dance and song are over.

The King-Bird has another form of display which he very rarely exhibits, and only on three or four occasions have I seen him go through this performance. Dropping under the perch the bird walks backwards and forwards in an inverted position with his wings expanded. Suddenly he closes his wings and lets his body fall straight downwards, looking exactly like a crimson pear, his blue legs being stretched out to their full length and his feet clinging to the perch. The effect is very curious and weird, and the performance is so like that of an acrobat suddenly dropping on to his toes on the cross-bar of a trapeze that I have named this the

"Acrobatic" display. It has been witnessed on different days to his "Juggling" display. While giving his Acrobatic performance he sings the whole time, but never shews his side-plumes; and when he is in the pendulous position his body sways gently as if it were influenced by a fitful breeze. The whole of this performance takes but a very few seconds.

The drawings by Mr. G. E. Lodge (Plate V. and text-figures 8 & 9) were sketched from life, the bird having given him a continuous exhibition of his display of nearly an hour's duration.

X.—*On the Anatomy and Systematic Position of the Colies.*

By W. P. Pycraft, F.Z.S., A L.S., M.B.O.U., &c.

I. Introduction, p. 229.
II. Pterylography, p. 230.
III. Myology, Syrinx, and Intestinal Convolutions, p. 237.
IV. Osteology, p. 240.
V. Summary, p. 249.
VI. References to previous Works, p. 253.

I. Introduction.

When, some months since, Dr. Sclater asked me to contribute a paper to 'The Ibis' on the anatomy of the Colies, with especial regard to the systematic position of these aberrant birds, it seemed to me that little that was new remained to be said. For, in addition to Dr. Murie's monograph on the skeleton (11) which appeared in 'The Ibis' so far back as 1872, a number of contributions have been made by other writers dealing with the pterylosis, myology, and intestinal convolutions.

Nevertheless, I have been enabled to add some new facts, as well as to correct, here and there, mis-statements or errors of interpretation, such as will creep in, even when the greatest care is taken to ensure accuracy.

In the course of my work I have received very material assistance from Dr. Sclater, and also from my friend Mr. D. Seth-Smith; both these gentlemen having furnished me with spirit-specimens of species hitherto undescribed except from the skins. But for their help this paper would never have been written. I therefore take this opportunity of thanking them. Further, and finally, I am also indebted to Mr. F. E. Beddard for the loan of spirit-specimens from the prosectorium at the Zoological Gardens.

II. PTERYLOGRAPHY.

Since, in some respects, pterylosis can most easily be studied in nestling birds, wherein the contour-feathers are just making their appearance, I have selected the nestling of *Colius affinis* for the following description. For the unexpected opportunity of so doing I have to thank Mr. D. Seth-Smith, who kindly presented two nestlings of that species to the Museum some little time since. These are here figured for the first time.

For the sake of clearness the pterylosis of *C. affinis* will be first described in detail without reference to other species: after which the points wherein these differ one from another will be stated.

Pteryla capitis (text-fig. 10, p. 231, *pt.cap.*).—The only adult examples of *C. affinis* which I have been able to examine I owe to the kindness of Mr. D. Seth-Smith, but unfortunately the pterylosis of the head-region was too much damaged for me to make out. From the examination of the nestlings, however, it would seem that the parietal apterion in this species is crescentic in shape, has the limbs of the crescent continued outwards into the ocular area, and is small in size.

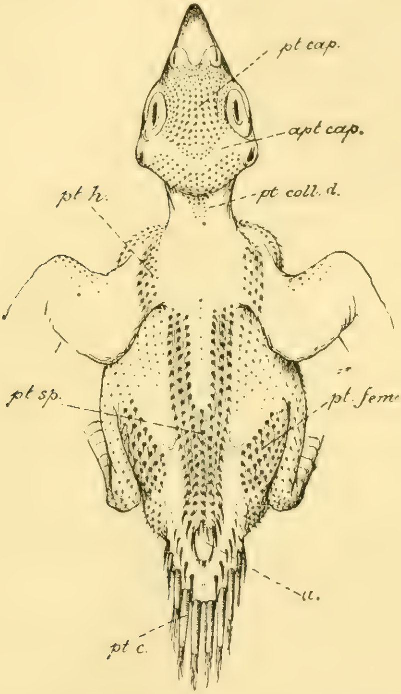
The upper jaw in the nestlings, I may remark, is of a lemon-yellow colour, while the under jaw is black; the inside of the mouth is also black, but the tongue is of a bright orange colour.

The anterior nares are small oval apertures, piercing the membranous outer wall of the nasal chamber.

Pt. colli dorsalis (text-fig. 10, *pt.coll.d.*).—This tract is of moderate width and just behind the head ceases to closely invest the neck, becoming supported by a median vertical fold of skin continued caudad into the

Pt. spinalis (text-fig. 10, *pt.sp.*).—This tract must be regarded as commencing at a point about level with a line drawn across the body from the free ends of the humeral tract, and is thus separated from the *pt. colli dorsalis* by a wide apterion. From its commencement it forms a

Text-fig. 10.



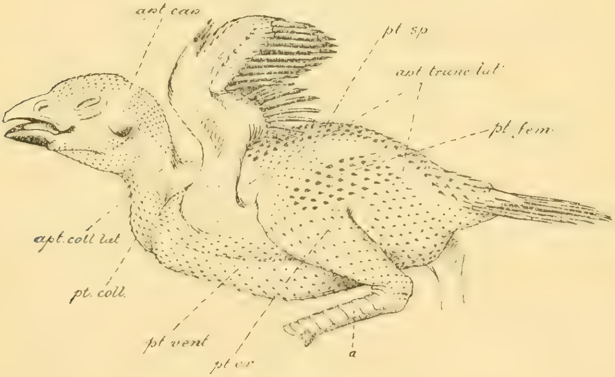
Dorsal aspect of *Colius affinis*, shewing the pterylæ. The neck is deeply flexed so that the *pteryla colli* is almost entirely concealed. The anterior portion of the *pt. spinalis* is wanting. There are 10 rectrices. The tail, as distinct from the rectrices, is of abnormal length.

pt.cap. = pteryla capitis.
pt.coll.d. = pteryla colli dorsalis.
pt.fem. = pteryla femoralis.
pt.h. = pteryla humeralis.
pt.sp. = pteryla spinalis.
pt.c = pteryla caudalis.
apt.cap. = apterion capitis.
u. = uropygium.

tract of unusual width, and passing downwards on either side merges insensibly into the femoral tract, while further backwards, over the acetabular region, it suddenly tapers to be continued caudad in the form of a narrow band to the uropygium. In the mid-dorsal line the tract is marked by a narrow but distinct apterion terminating over the acetabular region.

Pt. caudalis (text-fig. 10, p. 231, *pt.c.*).—There are 10 rectrices, and these are somewhat remarkable in that they are inserted as it were into a conical, rather than into the normal semicircular base; thus they approximate towards the more primitive arrangement which obtained in *Archæopteryx*.

Text-fig. 11.



Pterylosis of *Colius affinis* (side view).

Side view of the same specimen as in fig. 10. Note the great width of *pt. ventralis*, which posteriorly joins the *pt. femoralis*.

pt.coll. = pteryla colli.
pt.cr. = pteryla cruralis.
pt.sp. = pteryla spinalis.
pt.fem. = pteryla femoralis.
pt.vent. = pteryla ventralis.
dpt.cap. = apterion capitis.

a. = acrotarsium.
apt.coll.lat. = apterion colli lateralis.
apt.trunc.lat. = apterion trunci lateralis.

Pt. colli ventralis (text-fig. 11, *pt.coll.*).—This tract is ill-defined and sparsely feathered; at about the middle of the neck it divides, to pass, in the form of a broad band on either side, into the

Pt. ventralis (text-fig. 11, p. 232, *pt.vent.*).—This tract is not divisible into the usual short outer and long inner branches, but forms a band of great width, extending from the shoulder backwards to the cloaca, and meeting its fellow of the opposite side, so as very nearly to obliterate the apt. mesogastrei; indeed this is only traceable with difficulty.

Pt. femoralis (text-fig. 11, p. 232, *pt.fem.*).—This tract is of great width, confluent above with the *pt. spinalis*, and below with the *pt. ventralis* caudad of the thigh. Antero-ventrally it passes into the

Pt. cruralis.—This tract is unusually well developed, the tibial region of the leg being completely covered externally with weak feathers: the inner surface of the leg, however, is bare.

Pt. humeralis (text-fig. 10, p. 231, *pt.h.*).—Short and narrow, this tract presents no special characters of note.

Pteryla alaris:—

Metacarpo-digital remiges or primaries.—These are ten in number, the 10th being comparatively long. The outer primaries are particularly short, giving the expanded wing the much rounded appearance characteristic of birds which live among undergrowth and fly little.

Cubital remiges or secondaries.—These are eight in number, but the two innermost are greatly reduced in length, so much so as to be hardly distinguishable from their coverts. The wing is eutaxic, and this condition has probably been reached through the earlier diastataxic. Many of the Swifts have similarly become eutaxic.

Tectrices: upper surface:—

T. majores.—Those of the primaries are rather below the normal relative size. The carpal remex is long and downy, while its covert, of equal length, is pennaceous.

T. mediæ.—These present no characters demanding comment. The specimen having been in spirit I found it impossible to determine the overlap of this row and the remaining coverts.

T. minores.—There are three cubital rows of these coverts, but neither this series nor the preceding occur on the manus.

T. marginales.—These afford no facts of interest, except that they are throughout relatively long feathers, not forming a series of small, closely overlapping feathers, as in so many birds.

Tectrices: under surface :—

The *T. majores* appear to be wanting, but the *T. mediæ* are represented by small weak feathers. In addition to this row the under surface of the wing is very sparsely covered by a few straggling feathers representing the minor and marginal coverts. The latter in their shortness contrast with the same feathers in the Passeres, where the most preaxial rows are drawn out into long plumes masking the whole of the fleshy portion of the forearm.

Plumulæ or *down-feathers* are wanting.

The *Uropygium* is tufted.

The *Rhamphotheca* is Finch-like in shape and has the tomium entire. The nostrils are circular, have a slightly swollen rim, and are placed close to the feathers of the lores.

The *Podotheca.*—The acrotarsium (text-fig. 11, p. 232) is covered by five large scutes, which fail to meet in the middle line behind. The gap—along the planta—is filled in by soft skin covered with small granulations. The acropodium is peculiar, the back of each toe being covered with a number of small scutes, all of equal size.

In all the spirit-specimens examined, the hallux occupies the normal position, its under surface being apposed to that of D. II.: without difficulty, however, it can be brought round to the pamprodactylous position.

Claws.—On the toes these are moderately long, laterally compressed and hook-shaped; they are of equal size on D. II.–IV., but that of the hallux is slightly smaller than the rest. The pollex of the nestling bears the vestige of a claw, but this is entirely lost in the adult.

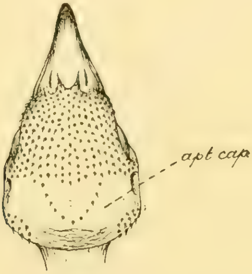
Neossoptiles.—The nestling-down plumage is vestigial, being represented only by a few minute rami borne on the tips of the contour-feathers.

The Pterylosis of some other Species of Colius *compared with that of* C. affinis.

The differences in the matter of pterylosis between *C. affinis* and *C. striatus*, *C. capensis*, *C. castanotus*, and *C. erythromelon* appear to be very small, and are confined almost entirely to the *pt. capitis*.

C. striatus (text-fig. 12).—The parietal apterion of this species differs from that of the other species herein described in that it is larger and has assumed an oval shape, laterally passing, as before, into the ocular area; while from the anterior margin of this area there runs backwards a horseshoe-shaped loop.

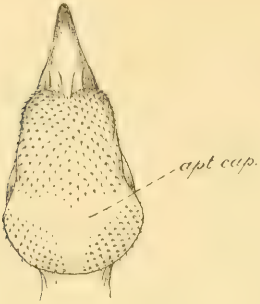
Text-fig. 12.



Dorsal aspect of the head of *Colius striatus*, shewing the parietal apterion.
apt.cap.=apterion capitis.

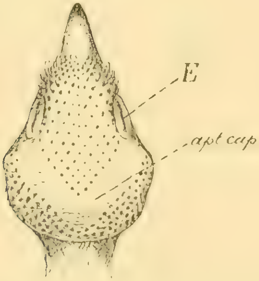
C. erythromelon (text-fig. 13, p. 236).—The *pt. capitis* differs conspicuously from that of *P. affinis* (text-fig. 10, p. 231) in the great size of the parietal apterion and the larger size of the ocular area, which runs into the parietal area on either side. The parietal apterion takes the form of a broad **T**-shaped space, the limbs thereof narrowing immediately above the auricular aperture and passing insensibly into the ocular area. The anterior boundary of the space does not extend beyond the level of the posterior border of the orbit; while the median stem of the "**T**" runs downwards to the occiput, tapering slightly to its base.

Text-fig. 13.



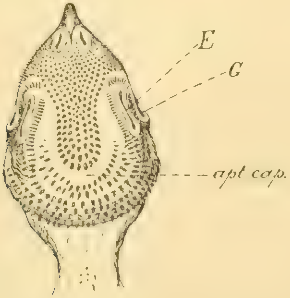
Dorsal aspect of the head of *Colius erythromelon*, shewing the parietal apterion.
apt.cap.=apterion capitis.

Text-fig. 14.



Dorsal aspect of the head of *Colius capensis*, shewing the parietal apterion.
apt.cap.=apterion capitis. *E.*=Eye.

Text-fig. 15.



Dorsal aspect of the head of *Cypselus apus*, shewing the parietal apterion (see p. 249).
apt.cap.=apterion capitis. *E.*=Eye. *G.*=Gape.

C. capensis (text-fig. 14, p. 236). The parietal apterion is V-shaped, and extends backwards, on either side, from the eye to terminate in a pointed apex above the occipital region. A small apterion surrounding the eyelids may be traced backwards into the limbs of the V-shaped parietal apterion. The malar and ramal areas and the region round the aperture of the ear are densely feathered. The inter-ramal area is bounded, on either side, by a narrow apterion.

III. Myology, Syrinx, and Intestinal Convolutions.

I have but little that is new to add on the subject of the Myology of the Colies, in so far as systematic work is concerned.

Garrod (6), it may be remembered, shewed that the ambiens was wanting, that the femoro-caudal was well developed, but had no accessory head, and that the semitendinosus and its accessory head were both fairly developed. Thus the muscle-formula, as laid down by Garrod, is A . XY. The *tensor fasciæ* of the thigh does not in any way overlap the biceps.

In the plantar tendons *Colius,* according to Garrod, "exactly resembles the feeble-footed Alcedinidæ, and hardly differs from the Coraciidæ, Meropidæ, and Caprimulgidæ," while, according to Dr. Gadow, these tendons agree with his type V. *a*—where the tendon of the *flexor longus hallucis* fuses with the *flexor perforans digitorum* along its fibular side, the united tendons split up, succesively, into four, running first to the hallux, and lastly to D. IV. Therefore, according to this, *Colius* agrees with *Buceros* and *Cypselus.*

My own dissections of these tendons seem, however, to shew that neither of the interpretations just given can be correct, inasmuch as a careful examination of the fused tendons shews that the *flexor longus hallucis* never completely fuses with the deeper tendon: the line of junction is always visible. Further, this tendon, the *fl. long. hall.*, splits up into two, one branch going to the hallux and one to D. II. (text-fig. 22, p. 251), while the *flex. perf. digit.* splits up to serve D. III. IV. This arrangement so far appears to be unique; yet it has probably been derived from an earlier and more primitive condition, shared in common with the Swifts and Humming-birds, a possibility which is discussed on p. 250. I would remark here, however, that, in the Swifts, as in the Colies, though the two tendons appear to fuse after the ankle-joint is passed, they, in reality, still shew traces of their originally separate condition. And from this it is clear that in the Swifts the *flexor longus hallucis* serves digits I. and IV., while II. and III. are served by the *fl. perf. digitorum.* This point is of no small interest and importance, as will be shown later (p. 252).

With regard to the wing-muscles. The *deltoides propatagialis* has the brevis portion large, fleshy, and continued downwards to the level of the *extensor carpi radialis* before becoming tendinous, the tendon running obliquely backwards after the fashion seen in the Passerine wing, but quickly becoming lost in the fascia of the forearm. The *longus* portion is given off unusually low down—from the middle of the belly of the brevis portion—and in the form of a slender muscular slip, which quickly gives place to tendon. The origin of this muscle is from the far end of the clavicle.

Biceps brachialis.—This is thick and fleshy, arising from the acrocoracoid laterad of the articulation for the furcula, and joins the humerus by one broad sheet of tendon running obliquely from acrocoracoid to humerus.

Biceps propatagialis.—Is represented by a short, thick, fleshy band or slip, a fact which is to be reckoned among the many peculiarities of the Colies.

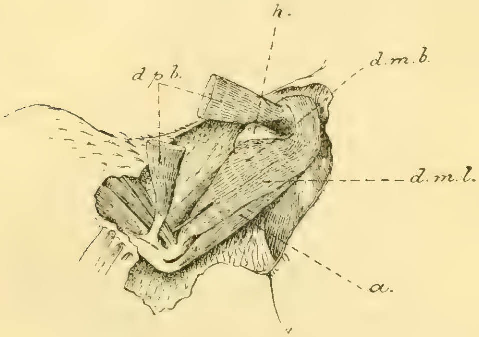
Deltoides major (text-fig. 16, p. 239).—These muscles seem to present a very unspecialized condition, the *longus* and *brevis* portions being confluent and extending the whole way down the humeral shaft. *Pars longa* arises in the form of a broad fleshy band from the clavicle, extending nearly half-way down the limb, and from the scapula immediately caudad of the glenoid cavity for the humerus. The *brevis* portion arises from the *os humeri scapulare* and from the rim of humeral cotylus of the coracoid and scapula, and is attached along the whole preaxial border of the humeral shaft.

In *Acanthidositta*—one of the "Tracheophone" Passeres—the *pars longa* has separate furcular and scapular heads as I have recently shown elsewhere (13), and it is evident that the heads have been derived by the splitting-up of an origin, such as that seen in *Colius*.

Besides the Hornbills and the Macrochires, the Colies are, as Mr. Beddard has remarked, the only flying-birds in which the *latissimus dorsi metapatagialis* is absent.

The *syrinx* is of the typical tracheo-bronchial type.

Text-fig. 16.



Wing-muscles of *Colius*, to shew the confluent condition of the *pars longa* and *brevis* of the deltoides major.

d.m.b.=deltoides major pars brevis.
d.m.l.=deltoides major pars longus.
d.p.b.=deltoideus propatagialis brevis.
a.=anconeus.
h.=humerus.

In the matter of the intestinal tract, Dr. Chalmers Mitchell (10) has shown that the Colies stand alone in the extreme shortness of the gut and the great width of its lumen—a modification which he attributes to the frugivorous habits of these birds. The duodenum is of great width. Meckel's tract similarly forms but a simple loop, bearing a small diverticulum ; while the rectum is short and wide. The cæca are altogether wanting.

In the general conformation of the tract, *Colius*, as Dr. Mitchell shews, closely agrees with the *Cypseli*, both being apocentricities of the archicentric Caprimulgine type.

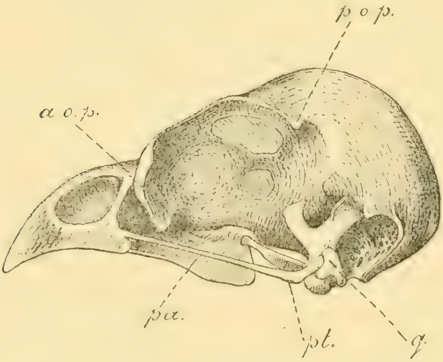
IV. Osteology.

Osteologically, the Colies present many peculiarities which, so far as the adult skeleton is concerned, make this group appear more isolated than is really the case; and this is especially true of the skull.

The Skull of the Adult.

The Skull (text-fig. 17).—The most conspicuous feature of the skull, in the adult, is the spherical shape of the cranium, the feeble development of the postorbital process (which may be described as obsolete), the vestigial lachrymal, and the palate (which is indirectly desmognathous); while the interorbital septum is complete and the nares are divided by a bony septum.

Text-fig. 17.



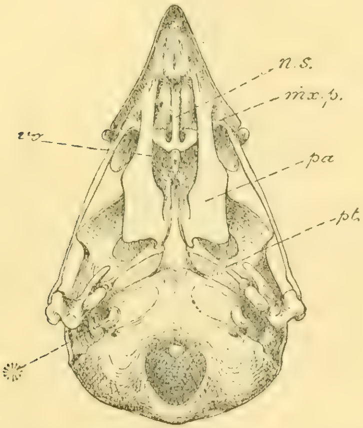
Lateral aspect of the skull of *Colius capensis*. ×2.

a.o.p.=antorbital plate.
p.o.p.=postorbital process.
pa.=palatine.
pt.=pterygoid.
q.=quadrate.

The tympanic cavity is relatively small, oval, and rather shallow. The lateral wing of the exoccipital, which forms the posterior boundary of this cavity, rises upwards to pass insensibly into the *processus articularis squamosi*, but there is no squamosal prominence. The *recessus tympanicus anterior*, which opens into this cavity, is small; while the *recessus tympanicus posterior* and *superior* are only feebly developed. In this region of the skull *Colius* resembles *Cypselus*.

The palate (text-fig. 18) has never been properly interpreted. Generally it is described as directly desmognathous; but this is not the case. As a matter of fact, the maxillo-palatines are extremely reduced—so much so, that they cannot be exposed without first carefully removing the underlying palatines. This done, it becomes manifest that the desmognathism is due to the inflation of the inferior border of the nasal septum and the ossification of the cartilage of the floor of the vestibulum, which forms two descending wings expanding, laterally, to fuse with the vestigial maxillo-palatine plate (text-fig. 19, p. 242).

Text-fig. 18.



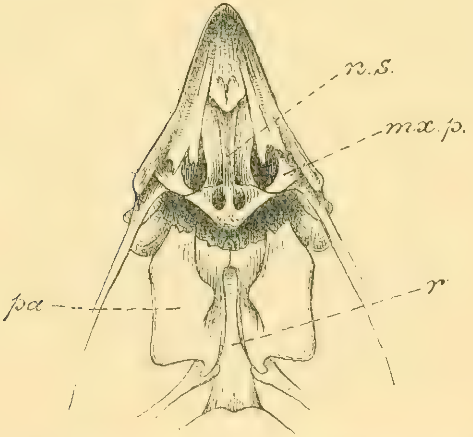
Ventral aspect of the same skull, to shew the arrangement of the palatine bones. ×2. The asterisk marks the articular surface for the lower jaw (p. 243).

mx.p. = maxillo palatine process.
n.s. = nasal septum.
pa. = palatine.
vo. = vomer.
pt. = pterygoid.

Murie (11), in describing the palate of *Colius leucotis*, wrote: "As respects the presence of a vomer, there is apparently a short one, tapering rather than abruptly truncate anteriorly, and not visibly deeply cleft behind." But Garrod (6), in describing the skull of *C. castanotus*, stated that, after careful maceration, he was unable to find a vomer. I have carefully dissected the skulls of *C. capensis* and *C. affinis* (three of the former), and find that the vomer is present, but only in the form of a very small nodule of bone (text-fig. 18, p. 241).

The *palatines* posteriorly expand into broad, oblong plates, and do not meet in the middle line beneath the parasphenoidal rostrum, in this particular recalling the skull of the Touracos.

Text-fig. 19.



Anterior portion of the ventral aspect of the same skull, further enlarged and dissected to display clearly the relation of the maxillo-palatines to the nasal septum.

mx.p.=maxillo-palatine process.
n.s.=nasal septum.
pa.=palatine.
r.=rostrum.

The *pterygoids* are moderately long, round, and slender rods articulating with the palatines by means of a well-developed joint.

The *quadrate* has the orbital and squamosal limbs subequal; while the articular surface for the quadrato-jugal bar is hollowed out of a laterally projecting spur. The external mandibular condyle is elongate and directed obliquely outwards; while the internal condyle is also elongate and runs parallel with the long axis of the pterygoid.

Basipterygoid processes are wanting.

With regard to the articulation of the lower jaw, a curious feature is noticeable in the skull of *Colius* that I do not remember to have seen elsewhere. This is the development of a distinct elliptical glenoid surface, for the articulation of the internal angular process of the lower jaw. It is borne on the antero-inferior angle of the lateral occipital wing, mesiad, and slightly caudad, of the internal mandibular condyle of the quadrate (text-fig. 18, *, p. 241).

The *lachrymal* is reduced to a short tear-shaped rod, fused with the superior angle of the antorbital plate; yet Murie described a lachrymal in *C. leucotis*, which was "nearly perpendicular, its inferior limb spongy . . . ," but there was no "backward upper orbital process" nor any *os crochu*. Some mistake has probably been made here, as also in the statement that the beak joined the skull by a nasal hinge.

The antorbital plate is large and quadrangular. The superior external angle of this plate projects laterad of the nasals, and represents the lachrymal, which has fused with the plate.

The mandible has a moderately long symphysis, a large lateral vacuity, and a short internal angular process, but is abruptly truncated posteriorly.

The hyoid.—The *basihyal* is completely ossified and arrowheaded in shape, being pointed in front and having the posterior angles produced backwards into a pair of spurs answering to the ceratohyals; further, the centre of the basihyal is perforated by a fan-shaped fenestra.

The *basibranchial* is elongated, laterally compressed, keeled, and produced backwards into a cartilaginous style—the 2nd basibranchial (urohyal). The *ceratobranchials* are relatively short, and so also are the epibranchials. These two rods—the cerato- and epibranchials—are subequal in length.

The Skull of the Nestling (text-fig. 20).

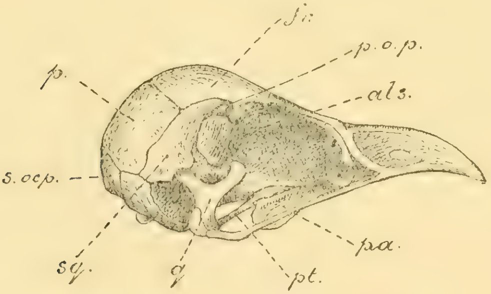
For an opportunity of studying the skull of the nestling Coly, I am indebted to the kindness of Mr. D. Seth-Smith, who furnished me with three nestlings of *C. affinis.*

The Cartilage-bones.

The *basioccipital* is short, rather narrow, and sharply cut off in front from the basitemporal plate.

The *exoccipital,* or lateral occipital, in these skulls is not yet completely ossified, the tympanic ring being cartilaginous.

Text-fig. 20.



Lateral aspect of the skull of nestling *Colius affinis,* to shew the form and relations of the squamosal.

als. = alisphenoid.
fr. = frontal.
p. = parietal.
p.o.p. = postorbital process.
pt. = pterygoid.
pa. = palatine.
q. = quadrate.
s.ocp. = supraoccipital.
sq. = squamosal.

Only by means of its extreme supero-internal angle does it come into contact with the parietal; and in this it differs from that of the Cypselidæ, wherein almost the whole dorsal border is apposed to the parietal.

The *supraoccipital* is paired, and extends upwards for a considerable distance to form, with its fellow, a full rounded contour.

The *pro-, epi-,* and *opisthotic* bones are now completely concealed from the outside; and so also is the *basisphenoid*, which is underfloored by the basitemporal plate.

The alisphenoid is at present unossified, and forms a large cartilaginous plate extending outwardly to join the squamosal, terminating immediately above and in front of the free end of this element to form the postorbital process, which appears to be represented by the alisphenoid alone.

The *orbito-sphenoid* and *mesethmoid* are still cartilaginous, while the quadrate differs in no way from that of the adult.

The Membrane-bones.

The *parietal* is roughly quadrangular in form, but has the inferior border slightly hollowed to receive the supraoccipital.

The *frontal* has a straight posterior border, and immediately in front of the squamosal sends down a narrow tongue to the orbito-sphenoid. In the supraorbital region it is reduced to a very narrow band, and finally terminates as usual under the nasals.

The *squamosal* takes the form of a cone, having its apex slightly bent forwards; the inner half of its base rests upon the tympanic ring of the lateral occipital, while its outer half forms the margin of the tympanic cavity. Superiorly it extends far beyond the parietal, forming the outer boundary of the frontal and terminating at the base of the postorbital process.

The *lachrymal* is represented here by a slender rod of bone running parallel to the descending process of the nasal, and sending backwards a long delicate supraorbital rod of cartilage along the frontal. In later life the lachrymal fuses completely with the antorbital plate and frontal.

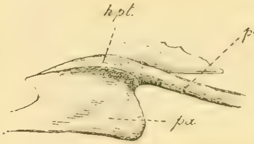
The *premaxilla* has moderately long palatine processes.

The *maxilla* is small, while its palatine processes are greatly reduced, forming an "oat"-shaped plate of bone concealed from below by the palatine rod. These processes are, however, relatively larger and more distinct than in the adult.

The *palatine* differs from that of the adult in that its mesial border has not yet received the addition of the hemipterygoid which is made to it later.

The *pterygoid* is rod-shaped and is continued forward along the whole length of the mesial rostral border of the palatine, terminating in a point (text-fig. 21). Thus at present there is no trace of the segmentation resulting in the formation of the temporary hemipterygoid, the ultimate fusion of which takes place with the palatine; while this element and the pterygoid come to articulate by a joint (figs. 17, 18, 19).

Text-fig. 21.



Hemipterygoid region of the pterygoid of the same skull (text-fig. 18).
pa.=palatine. *pt.*=pterygoid. *h.pt.*=hemipterygoid.

The Vertebral Column and Ribs.

All the presynsacral vertebræ are free and heterocœlous. The lower cervicals bear very small hypapophyses; while 1–4 of the dorsals are similarly protected, though these are relatively larger than in the cervicals. The last rib-bearing dorsal is included in the synsacrum, which is made up of 12 vertebræ. The dorsi-lateral processes of the sacrals are wanting. There are 7 free caudals, including the pygostyle, which is peculiar. Superiorly it is expanded to form a large pentagonal plate, which sends forward a long blunt spine, apparently representing an hypertrophied hypapophysis.

There are 7 pairs of free ribs, of which all but the last two bear uncinate processes. Of these ribs, however, only four pairs articulate with the sternum, though the sternal segments of the last three pairs are of great length.

The Sternum and Shoulder-girdle.

The sternum of the Colies resembles that of the Capitonidæ in that the posterior border of the sternal plate is deeply notched by two pairs of notches. It differs, however, in that the keel is hollowed along its anterior border, leaving a long *spina externa*; while in the Capitonidæ, as in so many Coraciiformes, the keel is continued forwards to a point corresponding with the level of the free end of the *spina sterni*. In the Colies, as among the majority of the Coraciiform types, the ribs articulate with the outer border of the anterior lateral process. There is no *spina interna*. The coracoids do not cross one another, have long shafts broad at the base, and lack the procoracoid.

In the great depth of the carina *C. macrurus* is remarkable among the Colies; while in this species also the *posterior lateral* and *intermediate processes* terminate in unusually large hastate expansions.

The *furcula* is **U**-shaped and has a small *hypocleideum*. So far as I can make out, except in *C. macrurus*, it is slender; but in the last-named species its rami are broad and twisted upon themselves. The free end of the furcula is expanded, and, being applied to the acromion of the scapula and the acrocoracoid, shuts in the *foramen triosseum*.

The *scapula* is long, slender, and scimitar-shaped.

The Pelvic Girdle.

The pelvic girdle is of moderate length, and has the preacetabular region of the ilium very narrow, pointed, and applied, low down, to the base of the neural plate of the synsacrum: the postacetabular region is wide, the dorsal plane inflated, curiously transparent, and extremely broad, the transverse processes of the synsacrum having become suppressed.

The ischium is narrow and produced backwards into a long downwardly directed pointed plate, which affords attachment to, but does not fuse with, the pubis.

The pubis is long, slender, and rod-like, and produced backwards beyond the level of the ischium.

The *fovea lumbalis* is small; while the *fovea ischiadica* and *pudendalis* are confluent.

The Pectoral Limb.

The pectoral limb of the Colies presents no very marked peculiarities. It is non-pneumatic, and has the humerus and manus subequal and longer than the forearm. The humerus has the *crista superior* triangular in shape, an unusually small *fossa subtrochanterica*, a feebly marked *sulcus transversus,* and a moderately deep *incisura capitis.* There are no ectepicondylar or entepicondylar tubercles, nor is there any tubercle on the palmar surface for the attachment of the *extensor metacarpi ulnaris.*

The ulna has but a feebly developed olecranon process, and the radius is straight.

The manus is moderately long, has the Mc. III. strongly bowed, while the Mc. II. develops a small intermetacarpal plate. The pollex shews a vestige of an ungual phalanx.

The Pelvic Limb.

The femur, which is moderately long and slender, presents no characters of importance in the present connexion.

The tibio-tarsus is long and slender, and has the entocnemial crest well developed and produced upwards to a rather considerable extent. The fibula is short. The condyles at the lower end of the shaft are laterally compressed; the inner condyle is conspicuously the larger of the two, and separated from its fellow by a deep intercondylar gorge, which is crossed above by an ossified extensor bridge.

The tarso-metatarsus has the trochleæ placed all in the same horizontal plane, the mesotrochlea being the largest and projecting slightly beyond the level of its neighbour on either side. Trochlea II. is much reduced, forming a small rounded knob with a faint median groove. In this arrangement of the condyles the tarso-metatarsus of *Colius* differs conspicuously from that which obtains in *Cypselus,* a fact which is all the more peculiar since both are pamprodactylous.

The hypotarsus is compound, taking the form of a flat plate perforated by a single foramen. The shaft is flattened antero-posteriorly, and has the outer border produced into a sharp edge, which, as it approaches the hypotarsus, widens out into a thin flange pierced by a small fenestra.

V. SUMMARY.

It must be evident, to those who have read the earlier sections of this paper, that the question of the systematic position of the Colies is not one that can be easily or over-confidently answered. But all the available evidence tends to shew that the nearest allies of this group are the *Cypseli*; though, as will be seen, in many points the two groups do not agree very closely, and this more especially with regard to the skeleton.

In the matter of their pterylosis the *Colii* and *Cypseli* shew a remarkable and significant likeness, and this is most apparent, perhaps, when nestlings are compared. In the present paper these comparisons have been made between *Colius affinis* and *Cypselus apus*.

In both groups the *pteryla capitis* is interrupted by an apterion; but while this apterion in *Colius* is of considerable size, and extends outwards to join the ocular area *behind* the eye, in *Cypselus apus* (for example) it is very narrow and joins the ocular area in *front* of the eye. Moreover, the feathers are arranged differently in the two types. In *Cypselus apus* there is a sharply defined, tongue-shaped, frontal area, wherein the feathers are closely set, contrasting with the more sparsely feathered parietal area.

In both the *Colii* and *Cypseli* the spinal tract is interrupted by a long narrow apterion, while the pterylæ are of unusual width throughout the body, thus reducing the apteria to a minimum. The difference in the form of the wing is entirely due to the difference in habit between the two groups, the one being of a sedentary habit and flying little, the other extremely active and depending for sustenance on insects caught in mid-air.

The myology of the two groups, when compared in this connexion, is less convincing. A comparison of the wing-muscles, for example, reveals nothing, so far as the question of relationship between the two groups is concerned; inasmuch as the *Cypseli* have undergone very profound modifications with regard to the wing—a degree of extreme specialization which has obliterated all the more normal, more primitive characters.

In the muscles of the thigh the *Cypseli* shew no less extreme modifications, or, as Dr. Chalmers Mitchell has it, apocentricity.

The plantar tendons of these two groups appear, at first sight, to be no more helpful in this connexion, inasmuch as, so far as the matter has been investigated, three very distinct combinations of these tendons have been brought to light, combinations represented respectively by the Colies, Swifts, and Humming-birds. If correctly interpreted they shew, however, that they must be regarded as so many modifications of a common and primitive plan, wherein the *flexor longus hallucis* split up to serve each of the four toes, while the *flexor perforans digitorum* was restricted in its ramifications to digits II., III., IV., the two tendons being unconnected by a vinculum. Such an arrangement, among living birds, has been found, so far, only in *Heliornis*, an aberrant Gruine bird. It would be beside the purpose of the present paper to enter into a discussion of the evolution of all the known types of plantar tendons, but we may gain a most instructive insight into the matter by the tendons in the Colies and the forms therewith associated—the Swifts and Humming-birds.

Curiously enough, the Humming-birds approach nearest to this primitive type, though even there a considerable degree of specialization has continued to mask the evidence of the earlier condition of things *.

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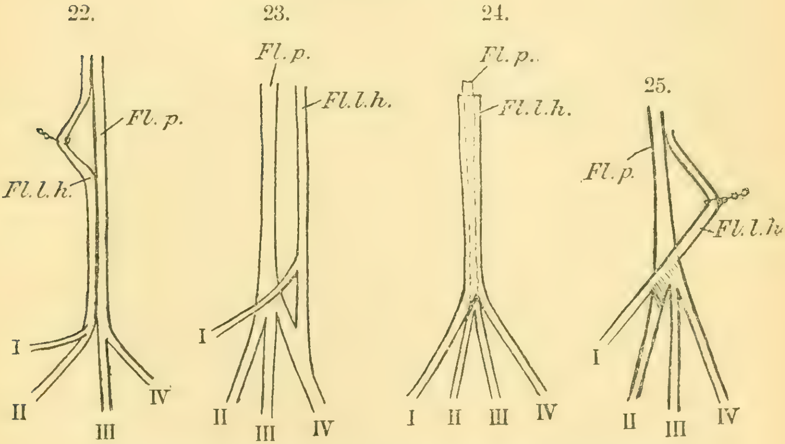
* Before proceeding further it would be well to remark that the description and figure of the plantar tendons of the Humming-birds given in Prof. Newton's 'Dictionary of Birds' by Dr. Gadow are incorrect. This fact was pointed out by Mr. F. A. Lucas in 'The Ibis,' 1895 (8), and appended to this correction will be found an acknowledgment by Dr. Gadow (5) of the accuracy of Mr. Lucas's remarks and the figure accompanying them. I have now, by dissection, been able to further confirm Mr. Lucas.

In the Humming-birds, then, the *flexor longus hallucis*, by means of a broad sheet of delicate tendinous strands, joins the anterior, *flexor perforans*, tendon at the level where it branches (text-fig. 25). This sheet undoubtedly represents all that remains of four separate and independent branches. The fibres of this sheet, which are attached to the tendon to D. II., are furthermore, it is to be noted, rather more strongly developed than those running to the other branches. Now in *Macropteryx* (one of the Swifts) the plantar tendons appear to differ markedly from those of all other Cypselidæ in that the *flexor longus hallucis* runs, as a separate tendon, directly into that branch of the *flexor perforans* which runs to D. IV.; it sends off, however, above the point where the three tendons of the *f. perforans* diverge, a branch to the hallux. A reference to the accompanying diagrams (text-figs. 22–25) will shew that if this branch to the hallux were connected by

Text-figs. 22–25.



Diagrammatic figures of the plantar tendons of *Colius* (22), *Macropteryx* (23), *Cypselus* (24), and a Humming-bird (25).

I., II., III., IV.=Tendons to digits I.–IV.
Fl.p. =Flexor perforans.
Fl.l.h.=Flexor longus hallucis.

strands of tendons to D. II. & III. we should have the same arrangement as that which obtains in the Humming-birds, except that the strongest strand would be that to D. IV.

The peculiar arrangement of these tendons in the remainder of the Swifts appears to have been derived by a further modification of the plan seen in *Macropteryx* (text-fig. 23, p. 251). Thus, from the tarsal region downwards the two tendons have fused, while at the base of the toes a further change has taken place. The *flexor perforans* branch to D. IV. as seen in *Macropteryx* has disappeared, so that this tendon now supplies only D. II.–III., while D. I. & IV. are supplied by the *fl. longus hallucis.* Thus it is clear that the plantar tendons of *Macropteryx*, or rather this particular method of arrangement, may well have given rise to the system of fused tendons which obtains among the rest of the Swifts. A reference to text-fig. 24, p. 251, will shew at a glance how easily the transition from the one to the other is made, for the plantar tendons of *Cypselus* differ from those of *Macropteryx* only in that they have become fused from the ankle-joint downwards, while the tendon of D. IV. of the *fl. perforans* has become replaced by the tendon from the *fl. long. hall.*

We now come to the Colies. Here, as we have already shown (p. 237), *fl. longus hallucis* runs to D. I.–II., *fl.perf.dig.* to D. III.–IV. (text-fig. 22). This arrangement may well have been derived by a modification resembling that found in the Swifts (text-figs. 23, 24), a strong connecting-band from the tendon to the hallux—the relic of branch II. of the originally complete *fl. long. hallucis*—grafting itself on to the tendon of the *fl. perforans* to D. II., and ultimately causing the severance of this branch with its original stem, and its incorporation with the *fl. long. hallucis,* this connecting band answering to that shown in text-fig. 23 running to D. IV. In other words, as *Cypselus* has preserved tendons I. & IV. of the original complete set, so *Colius* has kept I. & II.

Thus, then, the apparent differences in the plan of the plantar tendons of the Colies, Swifts, and Humming-birds are all, in reality, but modifications of a common type. This type is sufficiently distinct from all other known types to render it tolerably certain that the birds in which it is found must be more or less closely related.

In the convolutions of the intestines the Colies, as Dr. Chalmers Mitchell has shown, undoubtedly agree very nearly with the *Cypseli,* and this in spite of very extensive specialization in adaptation to a frugivorous diet.

So far as the known facts go, there is really little in the skeleton of the Colies to connect them with the *Cypseli*; and a study of nestling skeletons of both groups will undoubtedly add to the scanty evidence so far to hand. But the Colies are *indirectly* desmognathous, not *directly* so as is commonly stated; nor is the vomer absent, though reduced to the merest vestige.

Inasmuch as the Colies are undoubtedly related to the *Cypseli,* they are also related, though more remotely, to the *Caprimulgi,* since this last group represents the stock from which the two former have descended.

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XI.—*On the Birds of the Island of Formosa.*—Part II.*

By W. R. Ogilvie-Grant and J. D. D. La Touche.

The names of all the species of birds of which specimens were procured by Mr. Goodfellow are marked with an asterisk (*). Those obtained by Swinhoe and other collectors, and of which specimens are to be found in the British Museum or Liverpool Museum (Tristram Collection), are marked with a dagger (†). Some few species, which bear no mark, are included on the authority of Swinhoe, but of these no specimens have been examined, and possibly none were collected by him.

Strigidæ.

129. †Strix candida Tickell.

Strix pithecops Swinh. Ibis, 1866, p. 396.

Strix candida Swinh. P. Z. S. 1871, p. 344; Sharpe, Cat. Birds B. M. ii. p. 308 (1875); Tristram, Cat. of Birds, p. 68 (1889).

Swinhoe procured examples of the Barn-Owl from the interior of South-west Formosa.

Bubonidæ.

130. *Scops hambroecki (Swinh.).

Scops japonicus Swinh. (nec Schleg.) Ibis, 1865, p. 348; 1866, p. 307.

Ephialtes hambroecki Swinh. Ann. & Mag. N. H. (4) vi. p. 153 (1870).

Lempijius hambroecki Swinh. P. Z. S. 1871, p. 344.

Scops hambroecki Sharpe, Cat. Birds B. M. ii. p. 64 (1875); Seebohm, Ibis, 1895, p. 213; La Touche, t. c. pp. 325, 336.

a. ♀. Racu Racu Mts., 7000 ft., Jan. 1906.

b. ♀. Ho Ho Mt., 5000 ft., March 1906.

The Scops Owl from Mount Ho Ho is somewhat more rufous than that from the Racu Racu Mountains. The latter agrees exactly with Dr. Sharpe's careful description of the type-specimen in the Norwich Museum. The British Museum possesses an adult and a young bird obtained by P. A. Holst for the late Mr. Seebohm and alluded to by the latter in the 'Ibis' as cited above.

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* Concluded from p. 198.

131. †Scops glabripes Swinh.

Scops semitorques Swinh. (nec Schleg.) Ibis, 1863, p. 217.

Lempijius glabripes Swinh. P. Z. S. 1871, p. 343.

Scops glabripes La Touche, Ibis, 1898, p. 372.

This form of Scops Owl is a resident in Formosa. Holst procured specimens in nearly every month of the year.

132. Scops stictonota Sharpe.

Scops pennatus La Touche (nec Hodgs.), Ibis, 1895, p. 337.

Scops japonicus Swinh.; La Touche, op. cit. 1898, p. 371.

Scops stictonota Sharpe, Hand-l. B. i. p. 285. (1899).

Apparently a resident throughout Formosa.

133. Ninox japonica (Temm. & Schl.).

Ninox japonicus Swinh. Ibis, 1863, p. 215.

According to Swinhoe an example of the Japanese Hawk-Owl was frequently observed by him at Tamsui, but no specimen was procured. That in the Norwich Museum mentioned by Dr. Sharpe (Cat. Birds B. M. ii. p. 161) was no doubt wrongly labelled as coming from Formosa.

134. Syrnium indranee (Sykes).

Bubo caligatus Swinh. Ibis, 1863, p. 218; 1864, p. 429.

Bulaca newarensis (Hodgs.); Swinh. P. Z. S. 1871, p. 344; La Touche, Ibis, 1898, p. 372.

This Wood-Owl is resident in the mountains of North Formosa.

135. *Glaucidium pardalotum (Swinh.).

Athene pardalota Swinh. Ibis, 1863, p. 216.

Glaucidium pardalotum Sharpe, Cat. Birds B. M. ii. p. 214 (1875).

a–g. ♂ ♀. Ho Ho Mt., 5000 ft., Feb., March 1906.

Iris yellow; bill greenish yellow, lighter at the tip; feet yellowish green.

Though nearly allied to *G. brodiei* (Burt.), this Pigmy

Owl appears to be quite a well-marked insular form peculiar to Formosa and may be at once recognised by the heavy blackish brown drop-shaped spots on the breast and belly and by the much wider buff markings and bars on the innermost scapulars.

PANDIONIDÆ.

136. PANDION HALIAËTUS Linn.

Pandion haliaëtus Swinh. Ibis, 1863, p. 209; La Touche, op. cit. 1898, p. 372.

The Osprey is probably a resident in North Formosa.

FALCONIDÆ.

137. CIRCUS SPILONOTUS Kaup.

Circus spilonotus Swinh. Ibis, 1863, p. 213, pl. v.; La Touche, op. cit. 1895, pp. 326, 337; 1898, p. 372.

This Harrier winters on the lowlands of Formosa.

138. †CIRCUS ÆRUGINOSUS Linn.

Circus æruginosus Swinh. Ibis, 1865, pp. 349, 352; 1870, p. 87.

Circus, sp. inc., La Touche, op. cit. 1895, pp. 326, 337.

Circus æruginosus Sharpe, Cat. Birds B. M. i. p. 69 (1874); Slater, Ibis, 1895, p. 337; La Touche, op. cit. 1898, p. 372.

The Marsh-Harrier is common on the plains of Formosa in winter.

139. *LOPHOSPIZA TRIVIRGATA (Temm.).

Lophospiza trivirgata Swinh. Ibis, 1866, p. 395.

Lophospizias trivirgatus Blanford, Fauna Brit. Ind., Birds, iii. p. 401 (1895).

a. ♂. Kiu-Kong Chin Mt., 5000 ft., March 1906.

b, c. ♀ et ♂ imm. Ho Ho Mt., 5000 ft., March 1906.

♂ *adult.* Iris orange-yellow; rim of eyelids yellow; bill black; cere greenish grey; gape orange.

♀ *adult.* Iris deep reddish yellow; bill slate-coloured, black at the tip; cere and skin of face greenish; feet yellow, nails black.

♂ *imm.* Iris yellow, rim of eyelids yellow; bill black at the tip, slate-coloured at the base; cere and skin of face greenish; feet yellow.

The measurements of the birds are as follows:—

Adult male. Wing 9·0, tail 7·6 inches.

Immature male. Wing 8·5, tail 7·2 inches.

Adult female. Wing 10·5, tail 8·5 inches.

From these measurements it is clear that the Formosan Crested Goshawk belongs to the larger race inhabiting the Himalaya, which has been named *L. rufitincta* (*McClelland*).

140. *ACCIPITER AFFINIS Hodgs.

Accipiter virgatus La Touche (nec Temm.), Ibis, 1895, pp. 314, 337.

Accipiter affinis Grant, op. cit. 1896, p. 107.

a. ♀ imm. Racu Racu Mountains, 7000 ft., February 1906.

Iris yellow; bill slate-coloured; feet greenish yellow.

The measurements are as follows:—Wing 7·9, tail 6·5, tarsus 2·3 inches.

The Formosan bird, as has already been pointed out, belongs to the larger Himalayan form of the Besra Sparrow-Hawk. It inhabits the mountains of the interior of the island. In Grant's paper in the 'Ibis,' cited above, will be found descriptions and measurements of the different races.

141. ACCIPITER GULARIS (Temm. & Schl.).

Micronisus gularis Swinh. Ibis, 1863, p. 212.

Accipiter gularis Gurney, op. cit. 1863, p. 366; Grant, op. cit. 1896, p. 104.

Accipiter nisoides Blyth; La Touche, op. cit. 1898, p. 372.

This Sparrow-Hawk has been met with in Formosa, where it is perhaps a resident species.

142. BUTEO PLUMIPES (Hodgs.).

Buteo japonicus (T. & S.); Swinh. Ibis, 1863, p. 210.

Swinhoe says that this Buzzard is occasionally seen in Formosa, but no specimens were procured.

143. Aquila heliaca Savig.

Aquila heliaca Swinh. Ibis, 1865, p. 347.

Swinhoe states that he observed an example of the Imperial Eagle on Apes' Hill, Takow, in South Formosa.

144. Spizaëtus nipalensis Hodgs.

Spizaëtus orientalis T. & S.; Swinh. Ibis, 1863, p. 211.

Spizaëtus nipalensis? La Touche, op. cit. 1895, p. 337.

Hodgson's Hawk-Eagle is resident in the mountains of Formosa.

145. Spilornis cheela (Lath.).

Spilornis hoya Swinh. Ibis, 1866, pp. 304–307, 399.

Spilornis cheela (Lath.); Swinh. P. Z. S. 1871, p. 340; La Touche, Ibis, 1898, p. 372.

The Crested Serpent-Eagle is resident in the mountains of Formosa.

146. Butastur indicus (Gmel.).

Buteo poliogenys (Temm.); Swinh. Ibis, 1864, p. 429.

Poliornis poliogenys Swinh. op. cit. 1865, p. 545; 1866, p. 136.

Swinhoe procured a specimen of this Buzzard-Eagle from the interior of Formosa.

147. †Milvus melanotis Temm. & Schleg.

Milvus govinda Swinh. (nec Sykes) Ibis, 1863, p. 210.

Milvus melanotis Sharpe, Cat. Birds B. M. i. p. 324 (1874); La Touche, Ibis, 1895, p. 337; 1898, p. 373.

The Large Indian Kite is resident throughout the inhabited districts of the lower hills and plains.

148. Cerchneis japonicus (Temm. & Schleg.).

Falco tinnunculus japonicus Temm. & Schleg. Faun. Jap., Aves, p. 2, pls. 1, 1 b (1845–50).

Tinnunculus japonicus Swinh. Ibis, 1863, p. 211.

Falco tinnunculus La Touche (nec Linn.), op. cit. 1895, p. 337; 1898, p. 372.

This dark form of the Kestrel is common throughout the lower hills and on the plains in winter.

149. Falco peregrinus Linn.

Falco peregrinus Swinh. Ibis, 1863, p. 210; La Touche, op. cit. 1898, p. 372.

The Peregrine Falcon is probably resident in North Formosa.

SULIDÆ.

150. †Sula sula (Linn.).

Sula sinicadvena Swinh. Ibis, 1865, p. 109.

Sula fiber Swinh. (nec Linn.) P. Z. S. 1871, p. 420.

Sula sula Grant, Cat. Birds B. M. xxvi. p. 436 (1898).

Swinhoe procured an example of this Booby at Tamsui, N. Formosa.

PHALACROCORACIDÆ.

151. Phalacrocorax carbo (Linn.).

Phalacrocorax carbo Swinh. Ibis, 1863, p. 433.

Swinhoe says that this Cormorant is not uncommon on the rocks during winter.

152. Phalacrocorax bicristatus Pall.

Phalacrocorax bicristatus Swinh. Ibis, 1863, p. 434.

Swinhoe tells us that the Double-crested Cormorant is an accidental straggler to the north coast of Formosa.

ANATIDÆ.

153. Anser sp. inc.

On the 8th of December, 1894, La Touche observed three Geese flying overhead at Hobé (Tamsui), North Formosa.

Swinhoe says that the following species of Ducks occur in Formosa, but apparently he did not obtain specimens of the majority of them :—

154. Tadorna cornuta (Linn.).

Tadorna vulpanser Flem.; Swinh. Ibis, 1863, p. 434.

155. Casarca casarca (Linn.).

Casarca rutila (Pall.); Swinh. Ibis, 1863, p. 434.

156. †ÆX GALERICULATA (Linn.).

Æx galericulata Swinh. Ibis, 1866, p. 295; Salvad. Cat. Birds B. M. xxvii. p. 76 (1895).

The Mandarin-Duck is an inland resident.

157. ANAS BOSCAS Linn.

Anas boschas Swinh. Ibis, 1863, p. 434.

158. ANAS ZONORHYNCHA Swinh.

Anas pœcilorhyncha Swinh. (nec Pennant) Ibis, 1863, p. 434.

Anas zonorhyncha Swinh. op. cit. 1866, p. 394.

159. EUNETTA FALCATA (Georgi).

Querquedula falcaria Pall.; Swinh. Ibis, 1863, p. 434.

Eunetta falcata Swinh. P. Z. S. 1871, p. 419.

160. NETTION FORMOSUM (Georgi).

Querquedula glocitans Pall.; Swinh. Ibis, 1863, p. 434.

161. NETTION CRECCA (Linn.).

Querquedula crecca Swinh. Ibis, 1863, p. 434.

162. †QUERQUEDULA QUERQUEDULA (Linn.).

Querquedula circia Swinh. Ibis, 1863, p. 434; Salvad. Cat. Birds B. M. xxvii. p. 293 (1895).

A male Garganey was obtained by Swinhoe on March 13th at Tamsui. La Touche saw one, which had been shot by a friend in the same locality on April 7th.

163. †MARECA PENELOPE (Linn.).

Mareca penelope Swinh. Ibis, 1863, p. 434; Salvad. Cat. Birds B. M. xxvii. p. 227 (1895).

164. DAFILA ACUTA (Linn.).

Dafila acuta Swinh. Ibis, 1863, p. 434.

165. †SPATULA CLYPEATA (Linn.).

Spatula clypeata Swinh. Ibis, 1863, p. 434; Salvad. Cat. Birds B. M. xxvii. p. 306 (1895).

166. FULIGULA MARILA (Linn.).

Fuligula marila Swinh. Ibis, 1863, p. 434.

167. FULIGULA FULIGULA (Linn.).
Fuligula cristata Ray; Swinh. Ibis, 1863, p. 434.

168. CLANGULA CLANGULA (Linn.).
Clangula glaucion Swinh. Ibis, 1863, p. 434.

169. MERGANSER SERRATOR (Linn.).
Mergus serrator Swinh. Ibis, 1863, p. 434.

Note.—All the above-mentioned Ducks are common winter visitants to the coast of China generally. *Anas zonorhyncha* is a resident species throughout China. *Casarca rutila* is a rare species in Foh-kien, and is probably not common in Formosa also.

PLATALEIDÆ.

170. †PLATALEA MAJOR (Temm. & Schleg.).
Platalea major Swinh. Ibis, 1863, p. 417; 1864, p. 364. no. 1 ♀; Grant, op. cit. 1889, pp. 39–47, fig. 1.

Platalea leucerodia Sharpe, Cat. Birds B. M. xxvi. p. 44 (1898) [part.].

The Eastern form of the Common Spoonbill occurs in N. Formosa, and Swinhoe procured specimens of it in March.

171. †PLATALEA MINOR Temm. & Schleg.
Platalea minor Swinh. Ibis, 1864, pp. 368, 369. nos. 2, 34; Grant, op. cit. 1889, pp. 54–58, pl. 1. figs. 3, 3 A, 6, and woodcut fig. 2, p. 39; Sharpe, Cat. Birds B. M. xxvi. p. 50 (1898).

The Lesser Spoonbill was procured by Swinhoe in North Formosa in the month of March.

IBIDIDÆ.

172. IBIS NIPPON Temm.
Ibis nippon Swinh. Ibis, 1863, p. 416.

Seen by Swinhoe at the end of April on the mud-flats of the Tamsui River, N. Formosa.

ARDEIDÆ.

173. †GORSACHIUS GOISAGI Temm.

Ardea goisagi Swinh. Ibis, 1865, p. 353.

Gorsachius goisagi Swinh. op. cit. 1866, p. 403; Sharpe, Cat. Birds B. M. xxvi. pp. 169, 277 (1898).

The Japanese Bittern visits N. Formosa in winter.

174. †GORSACHIUS MELANOLOPHUS (Raffl.).

Gorsachius goisagi Swinh. (nec Temm.) Ibis, 1866, p. 122.

Gorsachius melanolophus Sharpe, Cat. Birds B. M. xxvi. pp. 166, 277 (spec. *k′*, *l′*) (1898).

The Malay Bittern occasionally visits South Formosa in winter. Swinhoe obtained two immature specimens.

175. †ARDEA CINEREA Linn.

Ardea cinerea Swinh. Ibis, 1863, p. 417; La Touche, op. cit. 1895, p. 306.

This Heron is a common resident.

176. †HERODIAS GARZETTA (Linn.).

Herodias garzetta Swinh. Ibis, 1863, p. 417.

The Little Egret is resident in Formosa.

177. HERODIAS ALBA (Linn.).

Herodias alba Swinh. Ibis, 1863, p. 417; Sharpe, Cat. Birds B. M. xxvi. p. 90 (1898); Rickett, Ibis, 1903, p. 220.

Ardea alba La Touche, op. cit. 1895, p. 306.

Herodias timoriensis Sharpe, Cat. Birds B. M. xxvi. pp. 98, 270 (1898).

The Great White Heron is common in Formosa in winter.

There is not the slightest doubt that adults from China assume a black (*very dark* green) bill in summer. The train of six males in La Touche's collection extends from 3·6 to 6·5 inches beyond the tail; that of three females from 1·6 to 3·5 inches [see Swinhoe, P. Z. S. 1871, p. 412 (*E. modesta* Gray)].

178. †HERODIAS EULOPHOTES Swinh.

Herodias eulophotes Swinh. Ibis, 1860, p. 64; 1863, p. 418; Rickett, op. cit. 1903, pp. 220, 221.

Demiegretta sacra Sharpe, Cat. Birds B. M. xxvi. pp. 137, 274 (1898) [part.].

Swinhoe's Egret is resident in North Formosa. Mr. Rickett has clearly pointed out the distinguishing characters of the species, and, in our opinion, has shown it to be quite distinct from *D. sacra*.

179. †NYCTICORAX NYCTICORAX (Linn.).

Nycticorax griseus (Linn.); Swinh. Ibis, 1863, p. 423.

Nycticorax nycticorax Sharpe, Cat. Birds B. M. xxvi. pp. 146, 275.

The Night-Heron is a common resident in Formosa.

180. †BUTORIDES JAVANICA (Horsf.).

Butorides javanica Swinh. Ibis, 1863, p. 420; Sharpe, Cat. Birds B. M. xxvi. pp. 177, 279 (1898).

Butorides macrorhynchus Gould; Swinh. P. Z. S. 1871, p. 413.

The Little Green Heron is abundant in all marshy grounds throughout Formosa in summer; a few individuals also occur in winter.

181. †BUBULCUS COROMANDUS (Bodd.).

Buphus coromandus Swinh. Ibis, 1863, p. 419.

Bubulcus coromandus Swinh. P. Z. S. 1871, p. 412; Sharpe, Cat. Birds B. M. xxvi. pp. 217, 283 (1898).

The Cattle-Egret is a summer visitant to Formosa.

182. †ARDETTA CINNAMOMEA (Gmel.).

Ardetta cinnamomea Swinh. Ibis, 1863, p. 422; Sharpe, Cat. Birds B. M. xxvi. pp. 236, 285 (1898).

The Chestnut Bittern is abundant in summer, a few individuals remaining throughout the winter.

183. †ARDETTA SINENSIS (Gmel.).

Ardetta sinensis Swinh. Ibis, 1863, p. 422; Sharpe, Cat. Birds B. M. xxvi. pp. 227, 283 (1898).

Swinhoe obtained one specimen of the Yellow Bittern at Tamsui in April: Holst also procured a young bird.

184. DUPETOR FLAVICOLLIS (Lath.).

Ardetta flavicollis Swinh. Ibis, 1863, p. 422.

The Black Bittern is no doubt a summer visitant to Formosa, but, according to Swinhoe, is rather rare.

PARRIDÆ.

185. †HYDROPHASIANUS CHIRURGUS (Scop.).

Hydrophasianus chirurgus Swinh. Ibis, 1866, p. 405; id., P. Z. S. 1871, p. 414; La Touche, Ibis, 1895, p. 327.

Hydrophasis chirurgus Sharpe, Cat. Birds B. M. xxiv. p. 69 (1896).

The Pheasant-tailed Jacana is resident in South Formosa.

GLAREOLIDÆ.

186. †GLAREOLA ORIENTALIS Leach.

Glareola orientalis Swinh. Ibis, 1863, p. 404; Sharpe, Cat. Birds B. M. xxiv. p. 58 (1896).

The Large Indian Pratincole abounds on the flat marshy grounds near Tainan.

CHARADRIIDÆ.

187. ARENARIA INTERPRES (Linn.).

Strepsilas interpres Swinh. Ibis, 1863, p. 414.

The Turnstone is a migrant and was seen by La Touche on May 5th at Tamsui.

188. HÆMATOPUS OSCULANS Swinh.

Hæmatopus longirostris Swinh. (nec Vieill.) Ibis, 1863, p. 406.

Hæmatopus osculans Swinh. P. Z. S. 1871, p. 405.

A few parties of this Oyster-catcher visit Apes'-Hill Creek, S. Formosa, during winter.

189. VANELLUS VANELLUS (Linn.).

The Lapwing is a winter visitant. La Touche has a specimen shot in Central Formosa.

190. †SQUATAROLA HELVETICA (Linn.).

Squatarola helvetica Swinh. Ibis, 1863, p. 404; Sharpe, Cat. Birds B. M. xxiv. p. 182 (1896).

The Grey Plover frequents the shores and the mouths of the rivers in winter.

191. †Charadrius dominicus, P. L. S. Müll.

Charadrius longipes Temm.; Swinh. Ibis, 1863, p. 404.

Charadrius fulvus Gmel.; Swinh. P. Z. S. 1871, p. 403; La Touche, Ibis, 1895, pp. 326, 327.

Charadrius dominicus Sharpe, Cat. Birds B. M. xxiv. p. 195 (1896).

The Eastern Golden Plover winters in Formosa.

192. †Ægialitis geoffroyi (Wagl.).

Ægialitis geoffroyi Swinh. Ibis, 1863, p. 405.

Ochthodromus geoffroyi Sharpe, Cat. Birds B. M. xxiv. p. 217 (1896).

Geoffroy's Sand-Plover is probably a resident species in West Formosa, as La Touche has reason to believe that it summers on the south coast of Foh-kien.

193. Ægialitis mongolica (Pall.).

La Touche shot an example of this Sand-Plover on May 5th on the mud-flats at the mouth of the Tamsui River.

194. †Ægialitis dealbata Swinh.

Ægialitis cantianus Swinh. Ibis, 1863, p. 405.

Ægialites dealbatus Swinh. P. Z. S. 1870, p. 138; 1871, p. 404.

Ægialitis dealbata Sharpe, Cat. Birds B. M. xxiv. p. 282 (1896).

This eastern form of the Kentish Plover is a common resident on the sandy shores of Formosa.

195. †Ægialitis dubia (Scop.).

Ægialites philippinus Swinh. Ibis, 1863, p. 406.

Ægialites dubius Swinh. P. Z. S. 1871, p. 404.

The Little Ringed Plover is a winter visitant.

196. Recurvirostra avocetta (Linn.).

Recurvirostra avocetta Swinh. Ibis, 1863, p. 406.

Swinhoe says that a few parties of Avocets visit Apes'-Hill Creek during winter.

197. †Numenius arquata (Linn.).

Numenius major Steph. and *Numenius arcuatus* Swinh. Ibis, 1863, p. 410.

Numenius lineatus Swinh. P. Z. S. 1871, p. 410.

Numenius arquatus Sharpe, Cat. Birds B. M. xxiv. p. 341 (1896).

The Curlew winters on the island.

198. NUMENIUS CYANOPUS Vieill.

Numenius rufescens Gould; Swinh. Ibis, 1863, p. 410.

Numenius tahitiensis Swinh. (nec Gmel.) P. Z. S. 1871, p. 410.

This Curlew is a migrant in Formosa. La Touche shot a specimen at Tamsui on the 5th of May.

199. NUMENIUS MINUTUS Gould.

Numenius minor Temm. & Schleg.; Swinh. Ibis, 1863, p. 409.

Numenius minutus Swinh. P. Z. S. 1871, p. 409.

The Little Whimbrel occurs in Formosa in late spring and early autumn.

200. †NUMENIUS VARIEGATUS (Scop.).

Numenius uropygialis Gould; Swinh. Ibis, 1863, p. 409.

Numenius luzoniensis (Gmel.); Swinh. P. Z. S. 1871, p. 410.

Numenius variegatus Sharpe, Cat. Birds B. M. xxiv. p. 361 (1896).

The Eastern Whimbrel was obtained by Swinhoe at Tainan on the 30th of October, and La Touche shot examples of it at Tamsui on the 5th of May.

201. LIMOSA NOVÆ ZEALANDIÆ Gray.

Limosa uropygialis Gould; Swinh. Ibis, 1863, p. 409; id. P. Z. S. 1871, p. 406.

This Godwit is met with in Formosa in winter.

202. †TOTANUS CALIDRIS (Linn.).

Totanus calidris Swinh. Ibis, 1863, p. 407; Sharpe, Cat. Birds B. M. xxiv. p. 414 (1896).

The Redshank occurs as a winter visitor.

203. †TOTANUS STAGNATILIS Bechst.

Totanus stagnatilis Swinh. Ibis, 1863, p. 406; Sharpe, Cat. Birds B. M. xxiv. p. 422 (1896).

Swinhoe procured a single example of the Marsh-Sandpiper on the 30th of August, 1861, from a small flock on the mud-flats near Tainan.

204. †TOTANUS OCHROPUS Linn.

Totanus ochropus Swinh. Ibis, 1863, p. 407.

Helodromus ochropus Sharpe, Cat. Birds B. M. xxiv. p. 437 (1896).

The Green Sandpiper is a winter visitant.

205. TOTANUS GLAREOLA (Gmel.).

Totanus glareola Swinh. Ibis, 1863, p. 407.

Flocks of the Wood-Sandpiper are abundant in early winter and spring.

206. †TOTANUS BREVIPES Vieill.

Totanus brevipes Swinh. Ibis, 1863, p. 407.

Heteractitis brevipes Sharpe, Cat. Birds B. M. xxiv. p. 449 (1896).

The Grey-rumped Sandpiper passes in late spring and early autumn.

207. †TRINGOIDES HYPOLEUCUS (Linn.).

Tringoides hypoleucus Swinh. Ibis, 1863, p. 408; Sharpe, Cat. Birds B. M. xxiv. p. 456 (1896).

The Common Sandpiper is an abundant resident species.

208. TEREKIA CINEREA (Güld.).

La Touche procured an example of the Terek Sandpiper on the 5th of May on the mud-flats at the mouth of the Tamsui River.

209. †GLOTTIS NEBULARIUS (Gunner).

Totanus glottis (Lath.); Swinh. Ibis, 1863, p. 406.

Glottis nebularius Sharpe, Cat. Birds B. M. xxiv. pp. 481, 764 (1896).

The Greenshank is a winter visitant.

210. CALIDRIS ARENARIA (Linn.).

Calidris arenaria Swinh. Ibis, 1863, p. 414.

The Sanderling visits Formosa on migration. A few individuals pass the winter there, according to Swinhoe.

211. †Tringa ruficollis Pall.

Tringa albescens Temm.; Swinh. Ibis, 1863, p. 413.

Tringa damacensis Swinh. (nec Horsf.) Ibis, 1863, p. 413 [*cf.* Sharpe, Cat. p. 545].

Limonites ruficollis Sharpe, Cat. Birds B. M. xxiv. p. 545 (1896).

The Eastern Little Stint occurs as a migrant on the marshy lands of South-west Formosa.

212. Tringa temmincki Leisl.

Tringa temminckii Swinh. Ibis, 1863, p. 412.

Temminck's Stint is a common winter visitant to the inland waters and marshes.

213. †Tringa acuminata (Horsf.).

Tringa acuminata Swinh. Ibis, 1863, p. 412.

Heteropygia acuminata Sharpe, Cat. Birds B. M. xxiv. p. 566 (1896).

The Pectoral Sandpiper visits Formosa on migration in May and August.

214. Tringa americana Cassin.

Tringa cinclus Swinh. (nec Linn.) Ibis, 1863, p. 411.

Pelidna americana Sharpe, Cat. Birds B. M. xxiv. pp. 608, 769 (1896).

The American Dunlin is a winter visitant.

215. Limicola platyrhyncha Temm.

Tringa platyrhyncha Swinh. Ibis, 1863, p. 412.

The Broad-billed Sandpiper visits the south-west shores of Formosa in September.

216. †Gallinago stenura (Bonap.).

Gallinago stenura Swinh. Ibis, 1863, p. 415; Sharpe, Cat. Birds B. M. xxiv. p. 619 (1896).

The Pin-tailed Snipe winters in Formosa.

217. †Gallinago megala Swinh.

Gallinago megala Swinh. Ibis, 1863, p. 415; Sharpe, Cat. Birds B. M. xxiv. p. 624 (1896).

Swinhoe's Snipe is a migrant to Formosa.

218. †GALLINAGO GALLINAGO (Linn.).

Gallinago scolopacina Bonap.; Swinh. Ibis, 1863, p. 415.

Gallinago gallinago Sharpe, Cat. Birds B. M. xxiv. p. 633 (1896).

The Common Snipe winters in Formosa.

219. †GALLINAGO GALLINULA (Linn.).

Limnocryptes gallinula Swinh. P. Z. S. 1871, p. 407; Sharpe, Cat. Birds B. M. xxiv. p. 665 (1896).

Swinhoe received a specimen of the Jack Snipe shot in Formosa.

220. †SCOLOPAX RUSTICULA Linn.

Scolopax rusticula Swinh. Ibis, 1863, p. 415; Sharpe, Cat. Birds B. M. xxiv. p. 671 (1896).

A Woodcock procured in Formosa by Swinhoe during October is in the British Museum.

221. †ROSTRATULA CAPENSIS (Linn.).

Rhynchæa sinensis Swinh. Ibis, 1864, p. 370.

Rostratula capensis Sharpe, Cat. Birds B. M. xxiv. p. 683 (1896).

The Painted Snipe is a resident in Formosa. La Touche obtained an example on the 29th of January on the savage border near Tokoham, N. Formosa.

222. †PHALAROPUS HYPERBOREUS (Linn.).

Lobipes hyperboreus Swinh. Ibis, 1863, p. 415.

Phalaropus hyperboreus Sharpe, Cat. Birds B. M. xxiv. p. 698 (1896).

The Red-necked Phalarope has been obtained in both North and South Formosa on migration, in November and April respectively, by Swinhoe.

LARIDÆ.

223. †HYDROCHELIDON HYBRIDA (Pall.).

Hydrochelidon indica (Stephen); Swinh. Ibis, 1863, p. 428; id. P. Z. S. 1863, p. 328.

Hydrochelidon hybrida Swinh. P. Z. S. 1871, p. 421; Saunders, Cat. Birds B. M. xxv. p. 10 (1896).

The Whiskered Tern frequents the marshy lands of S.W. Formosa.

224. †Hydroprogne caspia (Pall.).

Sterna caspia Swinh. Ibis, 1863, p. 430.

According to Swinhoe a few Caspian Terns visit the coast in winter. La Touche thinks that this species is probably resident.

225. Sterna bergii Licht.

Sterna cristata Steph.; Swinh. Ibis, 1863, p. 430.

The Swift Tern is common on the north coast throughout the year, and breeds on Kelung Island.

226. Sterna anæstheta Scop.

Haliplana anæstheta Swinh. P. Z. S. 1871, p. 422.

Common about the Pescadores Islands.

227. †Sterna sinensis (Gmel.).

Sternula sinensis and *Sterna minuta* Swinh. (nec Linn.) Ibis, 1863, pp. 429, 430.

Sterna sinensis Saunders, Cat. Birds B. M. xxv. p. 113 (1896).

The Chinese Tern is resident on the east coast, where it breeds.

228. †Anous stolidus (Linn.).

Anous stolidus Swinh. Ibis, 1863, p. 430; Saunders, Cat. Birds B. M. xxv. p. 136 (1896).

The Noddy breeds on the cliffs at Sawo, N.E. Formosa.

229. †Larus crassirostris Vieill.

Larus crassirostris Swinh. Ibis, 1863, p. 428; Saunders, Cat. Birds B. M. xxv. p. 227 (1896).

The Black-tailed Gull is doubtless a resident on the coast of Formosa.

230. †Larus canus Linn.

Larus niveus Pall.; Swinh. Ibis, 1863, p. 428.

Larus canus Saunders, Cat. Birds B. M. xxv. p. 277 (1896).

The Common Gull is a winter visitant.

231. LARUS SAUNDERSI Swinh.

Chroicocephalus kittlitzii Swinh. (nec Bruch.) Ibis, 1863, p. 428.

Chroicocephalus saundersi Swinh. P. Z. S. 1871, p. 273, pl. xxii.

Larus saundersi Saunders, Cat. Birds B. M. xxv. p. 183 (1896).

Swinhoe says that Saunders's Gull is a winter visitor to Formosa.

232. LARUS RIDIBUNDUS Linn.

Chroicocephalus ridibundus Swinh. Ibis, 1863, p. 428.

The Black-headed Gull is also recorded on the authority of Swinhoe, but he does not appear to have procured any specimens.

PROCELLARIIDÆ.

233. OCEANODROMA MONORHIS Swinh.

Thalassidroma monorhis Swinh. Ibis, 1867, p. 386; id. P. Z. S. 1871, p. 422.

Swinhoe's Storm-Petrel breeds on the small islands north-east of Formosa.

DIOMEDEIDÆ.

234. DIOMEDEA ALBATRUS Pall.

Diomedea brachyura Temm.; Swinh. Ibis, 1863, p. 431.

Diomedea albatrus La Touche, op. cit. 1895, p. 327.

The Short-tailed Albatross is abundant in winter about the Pescadores Islands and in the Formosa Channel.

235. DIOMEDEA NIGRIPES Aud.

Diomedea nigripes Swinh. Ibis, 1863, p. 431.

Swinhoe says that the Black-footed Albatross is abundant in the Formosa Channel at all seasons.

COLYMBIDÆ.

236. COLYMBUS SEPTENTRIONALIS Linn.

Colymbus septentrionalis Swinh. Ibis, 1863, p. 433.

The Red-throated Diver visits the coast of Formosa in winter.

PODICIPEDIDÆ.

237. †PODICIPES PHILIPPENSIS Bonn.

Podiceps minor Swinh. (nec Linn.) Ibis, 1863, p. 433.

Podicipes philippensis Grant, Cat. Birds B. M. xxvi. p. 511 (1898).

The Eastern Dabchick is an abundant resident on the inland waters of Formosa.

RALLIDÆ.

238. †HYPOTÆNIDIA STRIATA (Linn.).

Rallus striatus Swinh. Ibis, 1863, p. 427.

Hypotænidia striata Sharpe, Cat. Birds B. M. xxiii. p. 33 (1894).

The Banded Rail was obtained in summer by Swinhoe.

239. †RALLINA FORMOSANA Seebohm.

Rallina formosana Seebohm, Bull. B. O. C. iv. p. vii (1894); id. Ibis, 1895, pp. 146, 211.

The Formosan Rail was obtained by P. A. Holst in Central Formosa, and is peculiar to the island.

240. †AMAURORNIS FUSCUS (Linn.).

Porzana fusca Swinh. Ibis, 1863, p. 426.

Limnobænus fuscus Sharpe, Cat. Birds B. M. xxiii. p. 146 (1894).

The Ruddy Crake is abundant about Tainan, and is probably a resident in Formosa.

241. †AMAURORNIS PHŒNICURA (Forst.).

Gallinula phœnicura Swinh. Ibis, 1863, p. 427.

Amaurornis phœnicura Sharpe, Cat. Birds B. M. xxiii. p. 156 (1894).

The White-breasted Water-Hen is found in summer in Formosa and is probably a resident.

242. †GALLINULA CHLOROPUS (Linn.).

Gallinula chloropus Swinh. Ibis, 1863, p. 427; Sharpe, Cat. Birds B. M. xxiii. p. 169 (1894).

The Common Water-Hen is found on most of the inland waters of Formosa.

243. GALLICREX CINEREA (Gmel.).

Gallicrex cristatus (Lath.); Swinh. Ibis, 1863, p. 425.

The Water-Cock is a summer visitant to Formosa and breeds there.

244. FULICA ATRA Linn.

Fulica atra Swinh. Ibis, 1864, p. 370.

In winter the Common Coot visits the inland lakes of the island.

COLUMBIDÆ.

245. *SPHENOCERCUS SORORIUS Swinh.

Sphenocercus sororius Swinh. Ibis, 1866, pp. 311, 406; id. P. Z. S. 1871, p. 396.

Treron chœroboatis Swinh. Ibis, 1866, p. 313.

Sphenocercus sororius Salvad. Cat. Birds B. M. xxi. p. 13 (1893).

a, b. ♂. Racu Racu Mts., 6000 ft., Jan., Feb. 1906.

c–f. ♂ ♀ et ♀ imm. Ho Ho Mt., 5000 ft., March 1906.

Inner ring of iris blue, outer ring purple; bill bluish grey at the tip, cobalt-blue at the base; feet red.

This Green Pigeon is peculiar to the mountains of Formosa.

246. †SPHENOCERCUS FORMOSÆ (Swinh.).

Treron formosæ Swinh. Ibis, 1863, p. 396; 1865, p. 540; 1866, p. 312.

Sphenocercus formosæ Salvad. Cat. Birds B. M. xxi. p. 13, pl. 1 (1893); McGregor & Worcester, Hand-l. B. Philippine I. p. 9 (1906) [Calayan].

The Formosan Green Pigeon inhabits the mountains in the south of the island. According to Messrs. McGregor and Worcester it has been taken in Calayan, Babuyan Islands.

247. †TURTUR HUMILIS (Temm.).

Turtur humilis Swinh. Ibis, 1863, p. 397; Salvad. Cat. Birds B. M. xxi. p. 434 (1893).

This Turtle-Dove is found in the low country about Tainan in summer.

248. †Turtur chinensis (Scop.).

Turtur chinensis Swinh. Ibis, 1863, p. 397; La Touche, op. cit. 1895, p. 338; 1898, p. 373; Salvad. Cat. Birds B. M. xxi. p. 439 (1893).

The Chinese Turtle-Dove is resident throughout the lower hills and plains of Formosa.

249. *Turtur orientalis (Lath.).

Turtur rupicola Swinh. Ibis, 1863, p. 397; La Touche, op. cit. 1895, pp. 312, 314, 338.

Turtur orientalis Salvad. Cat. Birds B. M. xxi. p. 403 (1893).

a. ♂. Ho Ho Mt., 5000 ft., March 1906.

Iris reddish golden; bill grey at the tip, dull red at the base; feet red.

This is the true *T. orientalis* with light whitish edges to the lesser and median wing-coverts. The bird seems to be fairly distinguishable from the Indian form, *T. meena* (Sykes), which has the lesser and median wing-coverts edged with chestnut.

The Rufous Turtle-Dove is resident in the hills of South and Central Formosa.

250. *Columba pulchricollis Hodgs.

Palumbus pulchricollis Swinh. Ibis, 1866, pp. 313, 396.

Columba pulchricollis Salvad. Cat. Birds B. M. xxi. p. 305 (1893).

a. ♂. Racu Racu Mts., 7000 ft., Jan. 1906.

The Ashy Wood-Pigeon occurs in the mountains of South and Central Formosa.

251. †Chalcophaps indica (Linn.).

Chalcophaps formosana Swinh. Ibis, 1865, pp. 357, 540.

Chalcophaps indica La Touche, op. cit. 1895, pp. 328, 329, 337; Salvad. Cat. Birds B. M. xxi. p. 514 (1893).

The Bronze-winged Dove is resident in South Formosa.

Turnicidæ.

252. †Turnix taigoor (Sykes).

Turnix ocellata Swinh. (nec Scop.) Ibis, 1863, p. 398.

Turnix rostrata Swinh. Ibis, 1865, pp. 542–544.

Turnix taigoor Grant, Cat. Birds B. M. xxii. p. 530 (1893); id. Hand-b. Game-B. ii. p. 265 (1897); La Touche, Ibis, 1895, p. 338; 1898, p. 373.

This Bustard-Quail is common on the lower hills throughout Formosa.

It is not unlikely that *Turnix blanfordi* also occurs in Formosa (*cf.* Grant, 'Ibis,' 1896, p. 494).

253. †TURNIX DUSSUMIERI (Temm.).

Turnix dussumieri Swinh. P. Z. S. 1871, p. 401; Grant, Cat. Birds B. M. xxii. p. 540 (1893); id. Hand-b. Game-B. ii. p. 273 (1897).

The Little Bustard-Quail abounds on the low grassy hills about fifteen miles from Takow.

PHASIANIDÆ.

254. *ARBORICOLA CRUDIGULARIS (Swinh.).

Oreoperdix crudigularis Swinh. Ibis, 1864, p. 426.

Arboricola crudigularis Grant, Cat. Birds B. M. xxii. p. 211 (1893); id. Hand-b. Game-B. i. p. 164 (1895).

a–c. ♂ ♀ et imm. Racu Racu Mts., 8000 ft., Jan., Feb. 1906.

d–n. ♂ ♀. Ho Ho Mt., 5000 ft., Feb., March 1906.

Adult. Iris dark brown; bill black; feet vermilion.

In the immature bird the feathers on the top of the head are very distinctly spotted with black at the tip and have a subterminal light brown band (in the adult these markings are nearly obsolete); the median secondary-coverts are spotted with buff at the tip of the outer web; and a number of the *breast*-feathers are spotted with white at the tip of the shaft, like the flank-feathers. The bill is very much slighter than in the adult and is, moreover, differently coloured: the iris is light greyish brown; the bill reddish, black at the base and vermilion at the tip.

The Formosan Tree-Partridge is peculiar to the mountains of the interior of the island.

255. COTURNIX COTURNIX (Linn.).

Coturnix communis Swinh. Ibis, 1863, p. 398.

According to Swinhoe, the migratory Quail occurs in Formosa all the year round.

Coturnix japonica probably occurs there also (*cf.* La Touche, 'Ibis,' 1898, p. 373).

256. EXCALFACTORIA CHINENSIS (Linn.).

Excalfactoria chinensis Swinh. Ibis, 1863, p. 398; Grant, Cat. Birds B. M. xxii. p. 250 (1893): id. Hand-b. Game-B. i. p. 193 (1895); La Touche, Ibis, 1895, p. 338; 1898, p. 373.

The Painted Quail is a resident on the plains and lower hills.

La Touche, when in South Formosa, found that the Formosan name "*Koo-lew*," applied to this Quail by Swinhoe, is given in South Formosa to *several* kinds of *small Waders*.

257. *BAMBUSICOLA SONORIVOX Gould.

Bambusicola sonorivox Gould, P. Z. S. 1862, p. 285; Swinh. Ibis, 1863, pp. 208, 399; Gould, B. Asia, vi. pl. 72 (1864); Grant, Cat. Birds B. M. xxii. p. 259 (1893); id. Hand-b. Game-B. i. p. 204 (1895); La Touche, Ibis, 1895, p. 338; 1898, p. 373.

a, b. ♂ ♀. Ho Ho Mt., 5000 ft., March 1906.

Iris dark brown; bill black; feet greyish olive-green.

The Formosan Bamboo-Partridge is peculiar to the island and is found in suitable localities throughout the hills and mountains.

258. *GENNÆUS SWINHOII (Gould).

Euplocamus swinhoii Gould, P. Z. S. 1862, p. 284; Swinh. Ibis, 1863, p. 401; Gould, B. Asia, vii. pl. 16 (1864); La Touche, Ibis, 1895, p. 338; 1898, p. 373.

Gennæus swinhoii Grant, Cat. Birds B. M. xxii. p. 309 (1893); id. Hand-b. Game-B. i. p. 278 (1895).

a–d. ♂. Racu Racu Mts., 7000 ft., Feb. 1906.

e–g. ♂. Ho Ho Mt., 5000 ft., Feb., March 1906.

Swinhoe's Kalij Pheasant is peculiar to the mountains of

Formosa, but appears to be rare towards the north of the island.

259. †Phasianus formosanus Elliot.

Phasianus torquatus Swinh. (nec Gmel.) Ibis, 1863, p. 401; 1866, p. 404.

Phasianus formosanus Elliot, P. Z. S. 1870, p. 406; Swinh. *op. cit.* 1871, p. 398; Grant, Cat. Birds B. M. xxii. p. 333 (1893); La Touche, Ibis, 1895, p. 338; 1898, p. 373; Grant, Hand-b. Game-B. ii. p. 27 (1897).

The Formosan Ring-necked Pheasant is peculiar to the island, and is generally distributed on the plains and lower hills.

260. *Calophasis mikado Grant.

Calophasis mikado Grant, Bull. B. O. C. xvi. p. 122 (1906).

a. [♂] Middle pair of tail-feathers. Mt. Arizan, Central Formosa.

This species was founded on the middle pair of tail-feathers of a Pheasant which inhabits Mt. Arizan, Central Formosa.

The feathers, which are shaped like the middle tail-feathers of *C. humiæ* (Hume), are black, crossed by about twelve narrow grey bands, about 1·5 inches apart. They are very different from the tail-feathers of any known species of Pheasant. They are incomplete at the base, but measure about 18·0 inches.

Mr. Goodfellow writes:—"I found these feathers in the head-dress of a savage, who had come to carry our baggage. He said that he had killed the bird on Mt. Arizan and that it was rare."

Hab. Mount Arizan, Central Formosa.

[On the Racu Racu Mountains Mr. Goodfellow also procured a female Pheasant of an unknown species, which is almost certainly referable to my *Calophasis mikado*, for it is most nearly allied to the female of *C. humiæ* and more distantly to that of *C. ellioti* (Swinh.).

When describing the two middle tail-feathers on which

C. mikado was founded, I overlooked this specimen; but if I am right in surmising that it is the female of *C. mikado*, I have no doubt been correct in referring the male to the genus *Calophasis*.

The following is a description of the bird:—

Adult female. Head and neck dark olive-brown, shading into dark rufous-brown on the crown and nape, where most of the feathers are marked with black; chin and throat pale whitish brown; ear-coverts blackish, with white shafts and middles; feathers of the mantle and upper back black, mottled with rufous-brown, and each with a terminal white hastate shaft-spot and olive-brown margin; lower back and rump olive-brown, transversely mottled with black and with pale whitish buff shaft-stripes; upper tail-coverts pale sandy-brown mixed with rufous, and with irregular wide black bars; feathers of the chest and sides of the body irregularly barred and marked with black and white and margined with olive-brown; middle of the breast very similar, but whiter; belly and vent greyish brown, barred with black and fringed with whitish; under tail-coverts chestnut, widely tipped with white and barred with black; primaries and secondaries black, barred with pale rufous, the outer secondaries being also more or less vermiculated with the same colour; wing-coverts and scapulars blotched with olive-brown and black, obliquely barred with pale rufous, and with pale whitish buff shaft-stripes and tips; tail-feathers sixteen in number, chestnut, barred throughout their entire length with black, and with pale sandy-buff speckled with black, all except the middle pair being tipped with white.

Total length ca. 18·0 inches; wing 7·6 tail 7·5; tarsus 2·3.

a. ♀. Racu Racu Mts., 7000 ft., Feb. 1906.

On the whole, this is a much darker bird than the female of *C. humiæ*, with more black bars and narrower white tips to the outer pairs of tail-feathers, and with very different under parts. From the female of *C. ellioti*, which it approaches in the general markings of the upper parts and in the rufous colour of the top of the head, it may be at once recognised by the absence of black on the throat and by the heavy black-and-white markings on the middle of the breast, which is mostly white in *C. ellioti*. The scaling of the tarso-metatarsus in this specimen seems to differ somewhat from that of *C. humiæ*, the whole of the hinder portion being clothed with rather small reticulate scales and lacking the row of scutes characteristic of the other two species; the tarso-metatarsus is, moreover, proportionately somewhat shorter.—W. R. O.-G.]

Of the 260 species enumerated in this list, no less than 50 are peculiar to the island of Formosa. It must, however, be noted that 3 of these species, viz. *Munia formosana*, *Spizixus cinereicapillus*, and *Sphenocercus formosæ*, are said to have been met with in other adjacent islands. Now of these the first and last-named are no doubt accidental stragglers to Luzon and the Babuyan Islands respectively, while with regard to *Spizixus cinereicapillus* there has probably been some mistake made. Either the specimen examined by Hartlaub did not come from Hainan (which seems most probable, as recent expeditions to that island have failed to meet with any species of *Spizixus*), or it may have been wrongly identified with *S. cinereicapillus*.

XII.—*On the Birds of Gazaland, Southern Rhodesia.*—Part II. By C. F. M. Swynnerton *.

92. Upupa africana. South-African Hoopoe.

I found these birds fairly plentiful but somewhat locally distributed; they prefer the thorn-and-grass-jungle type of country, and were common at Mafusi on my arrival there at the end of July 1900, when they were going about in pairs. In September, as a rule, they are very much in evidence, and their calls may be heard in every direction—whether as the result of a partial migration or of the fact that they are then less shy than at other times, I am unable to say: the natives to whom I have spoken on the subject attribute it to the latter cause. In any case, the calling of the Hoopoe in September and the coming of the Kite are to them the two chief signs that hoeing-time has again come round. The Hoopoe is by no means partial to the forest, though in November last I put one out of a hollow tree in Chirinda, where it had, perhaps, been prospecting for a nesting-site. One instance has been brought to my notice where a pair built in a rough bark-hive placed in a tree to attract bees.

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* Concluded from p. 74.

93. IRRISOR VIRIDIS. Kakelaar.

I have seen this bird on a few occasions only, in the open woods and again in the Jihu, and believe it to be anything but common.

94. RHINOPOMASTUS CYANOMELAS. Scimitar-bill.

Though not so scarce as the preceding species, this can hardly be described as one of our commoner birds. I have come across it in various parts of the district, but it shews a decided preference for grass-jungle country, and is commonest, perhaps, in the Jihu and at the lower altitudes in Mafusi's country.

95. CYPSELUS, sp. inc.*

A number of these birds visited my homestead at Mafusi on the 9th of August, 1899, and remained wheeling about in the neighbourhood for an hour or two. I secured a male; the contents of its crop were twelve bees and an ichneumon-fly. Length in the flesh 8·75 inches.

96. CAPRIMULGUS RUFIGENA. Rufous-cheeked Nightjar.

Probably plentiful. A female, which I shot in July—sitting, as is the bird's habit, in the centre of a path—had already well-developed eggs in her ovaries. I have not found that any distinction is drawn between the various species of Nightjars by the natives, who appear to regard them all as females of the long-plumed Standard-wing.

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* [Determined by Capt. Shelley as *C. æquatorialis* v. Müll., but more likely to be *C. niansæ* Reichenow.—P. L. S.]

97. Caprimulgus trimaculatus. Freckled Nightjar.

I secured a male of this species in June last; it was sitting at dusk in the centre of a road. The crop contained several Melalonthid beetles. Bill black, legs and feet grey. Length in the flesh 11·75 inches.

98. Caprimulgus fossii. Mozambique Nightjar.

An abundant bird: the call either of this or of the other common species (I have never secured one in the act of calling) is heard most frequently in October, when they are commencing to breed. It is distinctly musical, and by the natives is rendered by a name which signifies, "Grandpapa, I have married a wife" (literally, "the wife is paid for"). The crops examined contained beetles and in one case ova, probably of a large moth. Legs purplish grey.

99. Cosmetornis vexillarius. Standard-wing Nightjar.

I have found this Nightjar to be very fairly distributed, though nowhere abundant. The stomach of a male, shot on the Lower Umswirezi in November last, as it was hawking up and down over the water at nightfall, contained a large scarlet bug, the remains of hymenopterous insects, and beetles. The iris was indistinguishable from the pupil except by a faint purplish glow which pervaded it: the legs were distinctly purplish brown.

A pair of eggs of this bird at present in my possession measure 28 mm. in length by 21 in breadth, and are pale pinkish brown in ground-colour, covered all over with irregular and ill-defined freckles and blotches of pale brown and still paler grey. The long primaries of this bird used to be reserved for the king.

100. Coracias caudatus. Moselikatze's Roller.

On two occasions last winter, when I was burning grass, one of these birds visited the fire, taking up a position on a low tree hard by and making short flights after the insects that flew out. Though occurring in most parts of the district, "Blue Jays" are by no means so abundant here as in the neighbourhood of Salisbury. According to the natives, they will not infrequently kill and eat small birds and mice, and in trapping for a Roller the men are in the habit of baiting with a mouse tied by the leg and surrounded by limed twigs.

101. Coracias mosambicus. Purple Roller.

Commoner than the preceding species, and not unfrequently to be seen in the open woods perched on a small tree or dead branch, whence it makes short sallies—often to the ground—after its prey. It is by no means particular as to its food: I found the stomach of one individual crammed with evil-smelling locusts of a kind which is rejected by all self-respecting birds, and a Purple Roller, which lived for some months in my aviary, would greedily devour these and other distasteful insects. This bird, already old when caught, became so tame within a fortnight of its being placed in the aviary, that it would fly to my hand for grasshoppers whenever I entered, sometimes uttering a short harsh cry when disappointed or made to await its turn. The grasshoppers, if of a fair size, it would usually toss into the air, catching them again, perhaps three or four times, in order to get them into correct position—head first—to be swallowed, and anything really large, though swallowed whole in the end, it would first batter and bruise against my hand or the perch. As its crop filled, the Roller would become slower and more meditative, until at last, with the wings and legs of the last locust still protruding, it would seize another and hold it in its mouth for as many as five or ten minutes together, anxiously waiting to swallow it. It ate two small Warblers which were placed in the aviary, but, in all probability, these were first slain by my Touraco, for the Roller's attitude towards its fellow-prisoners was never aggressive.

102. Eurystomus afer. Cinnamon Roller.

I have not met with this Roller very frequently on the highlands, but found it extremely plentiful singly or in pairs throughout the open bush of the valley of the Lower Umswirezi in November, as well as in the large trees bordering the rivers. The birds were very bold, readily permitting a near approach as they sat upright, uttering their harsh cries, on the topmost twigs of the trees ; they preferred projecting dead branches, whence they could see and pounce upon passing insects without hindrance from the foliage. A female which I shot on the Chinyika in the same month contained an egg which would shortly have been laid ; and, also in November, a pair nested in a hole in the overhanging bough, unfortunately quite inaccessible, of a large tree on the outskirts of Chirinda. They brought off two young in safety, and remained about the spot for some weeks after these could fly, the four birds promptly attacking and chasing, for some three or four hundred yards—all the while dashing down on it from above with loud cries—every Hawk, Eagle, and Raven which ventured near the spot. Like *Coracias caudatus,* this bird is said by the natives to kill and eat small birds, and it is limed by them in the same way, with a striped mouse as a bait.

103. MEROPS APIASTER. European Bee-eater.

These birds are extremely plentiful during the summer months, especially in the Jihu type of country, where, in particular, they by no means restrict themselves to the neighbourhood of water, flocks, and even single individuals, being commonly found circling about and settling on trees and bushes some miles from the nearest good-sized stream. They are frequently to be seen flying swiftly at a great height in large flocks, uttering in unison a pleasant bell-like note. In 1899 they arrived in December, and I should say that the usual date is early in that month : they are always abundant during its latter half. They are said by the natives to call especially before rain.

104. MELITTOPHAGUS MERIDIONALIS. Little Bee-eater.

Fairly plentiful in grass-jungle, where, like the preceding species, it may commonly be found at considerable distances from water ; though elsewhere along the banks of rivers. I found a number of these birds settling on the reeds of the Lower Zona in December, and secured a female, in immature plumage so far as the breast was concerned, but with the blue eyebrow and carmine iris, and measuring 7 inches in the flesh. This is a resident species.

105. MELITTOPHAGUS BULLOCKOIDES. White-fronted Bee-eater.

I came across this bird in some numbers in November last, on the banks of the Lower Umswirezi, where it was probably breeding. The crop of a male which I secured contained only a cicada. Legs and feet leaden grey.

106. CERYLE RUDIS. Pied Kingfisher.

This Kingfisher is occasionally found on the larger rivers, and is probably not uncommon throughout the district. I noticed three or four on the Chinyika and Lower Umswirezi.

107. CORYTHORNIS CYANOSTIGMA. Malachite Kingfisher.

At the moment of writing one of these charming little Kingfishers, in immature plumage, has been brought to me by a Kafir, who trapped it on the headwaters of the Umswirezi.

108. HALCYON ORIENTALIS. Peters's Kingfisher.

This is the common Kingfisher of the kloofs and open woods, where it is really abundant; it may frequently be seen perched on a horizontal branch, generally low in the tree, and using it as a base of operations. The stomachs examined contained beetles, usually of considerable size, grasshoppers, Melalonthid larvæ, large crickets, a locust, a crab, and bones of a lizard.

109. HALCYON CHELICUTI. Striped Kingfisher.

I have only secured a single specimen of this bird in the district, trapped in the open woods on the 11th of February.

110. HALCYON CYANOLEUCUS. Angola Kingfisher.

I watched an individual of this species, at close quarters, for a short time, when encamped on the Umsesi River (Mafusi's country), at the end of May 1900. My notebook contains merely a description of the bird, unfortunately without any reference to its cry or habits, and I cannot trust my memory at this distance of time.

111. Colius striatus. Speckled Mouse-bird.

This Coly is very abundant, going about, except during the breeding-season, in flocks of six, eight, or more individuals. They are inveterate orchard-thieves, attacking more especially the guava-crop, and, in their case, there are no extenuating circumstances as with the Bulbuls; out of a number of stomachs examined I have in no case found anything but the remains of fruit, wild or cultivated. I have never seen a nest of this species with more than three eggs (some have contained only two, the females, shot on leaving the nest, having no very advanced eggs in their ovaries), and both the whites and natives, whom I have consulted on this point, agree in stating that three is the full number of the clutch. The nests which have come under my observation were frequently, but by no means invariably, formed of green material, and were placed at from five to fifteen feet from the ground in a fork, in a bunch of twigs, or on a horizontal branch (supporting twigs being present) of a "Gombati" (*Erythrina* sp.) or other low tree, and once in the centre of a tangled thicket of *Clematis*—usually near water. Two nests now before me represent fairly well the two types referred to above. Both are loose and untidy structures with an outside diameter, exclusive of projecting twigs, of 5 inches, and a cup-diameter of 3: the latter is 2 inches deep. The first nest consists almost entirely of green twigs of wild asparagus—a very favourite material,—those forming the lining being almost stripped of their leaves; a very few small dry grass-stems are woven into the general material, and into the bottom of the cup are worked the remains of two green leaves of a common mallow-like plant, much torn and perforated by the bird's beak or claws. The second nest is similar in its general construction, but is composed entirely of dry grasses (chiefly in the lining) and old dry weeds with many of the leaves still attached. The hen bird sits close, sometimes requiring the bough to be shaken before she will leave the nest, but once off she is undemonstrative, flying to the nearest dense thicket and remaining there till the danger is past. The eggs are of a dull white colour, opaque and somewhat rough, and those in my collection measure from 20 to 23 mm. in length by from 16 to 17 in breadth. The legs of this bird are here always rose-pink; the upper mandible of the bill is blackish, the lower dull white.

112. Bucorax cafer. Ground Hornbill.

Comparatively common in most parts of the district, and one of our most useful birds, accounting for large numbers of snakes and destructive insects. A party of four—this season five—are always to be seen in the neighbourhood of my homestead, evidently composed of the two old birds and the young of the last season, those of previous years being doubtless driven away or having wandered off to found beats of their own when the breeding-season comes round. They roost nightly in a certain projecting spur of forest composed of huge African mahoganies, and I have little doubt that it is in a hole in one of these trees that they annually hatch out their young. I can confirm to some extent Mr. Ayres's statement, quoted by Mr. W. L. Sclater ('Fauna of S. Africa,' Birds, vol. iii. p. 105), with regard to the carrying-power of their call: birds booming on a hill 1000 yards from my house make so loud a sound that I feel sure that at twice that distance, and probably much more, under similar circumstances—a valley between—they could still be heard, though, of course, more faintly. The Tshindawo wording of the call, no less than the better-known Zulu rendering, brings out well the idea, suggested by the actual tones of the birds, of the plaintive wife and the gruff practical husband:

Female: "*Riti! Riti! mwana waenda!*" ("Riti! Riti! the child's gone!").

Male: "*Ndizo, ndidzóngĕra tshero*" ("All right, the fewer mouths to feed!"—lit. "I have less trouble in getting food").

These birds are by no means shy, and on one or two occasions this season have done me good service in my tobacco-field. I once came across a party searching for food on the ground in the forest, though, as a rule, they prefer the short open grass-veld.

113. BYCANISTES BUCCINATOR. Trumpeter Hornbill.

Common not only in the forest, where it is not infrequently to be found in company with the next species, but elsewhere throughout the district: I have found it in the Jihu, and particularly on the Lower Umswirezi, where it frequents the large trees bordering the rivers. It can readily be distinguished from the other when on the wing or feeding by the far greater extent of white on its abdomen, its smaller and darker casque, and its slightly more plaintive and—if that will convey my meaning—less *brazen* braying. I have not found the nest of either species, but am informed by the natives that both plaster up the female during incubation, that they lay in December from two to four white eggs with light brownish markings—whether actual shell-coloration or mere blood-stains my informants were unable to tell me,—and that young birds are to be found in the nests in February. This all sounds probable enough, but it would be unsafe to place too much reliance on information of the kind, and, owing to the fact that I have not infrequently seen the birds in pairs when the female ought to be sitting and a prisoner, I am sceptical with regard to this point. These birds, in common with *B. cristatus,* are excellent eating, the flesh being dark and somewhat resembling that of a Crane in flavour. A native tradition associates the Trumpeter with the first cultivation of cereals by mankind. Long ago, says the story, man lived by hunting only, but one day a hunter, seeing a bird go into a hole in a large tree, went to the spot and found lying below some "Mapfundo" (*Sorghum*) and "Mungeza" (*Eleusine*): on his taking these home and shewing them to the people they accompanied him back to the tree, and, climbing up, found quite a store of grain, which they took and sowed: thus, say the natives, did men first obtain seed for cultivation, and they named the bird "Ishérera-kuri" ("he that forages afar").

114. Bycanistes cristatus. Zambesi Trumpeter.

Bycanistes cristatus Ogilvie-Grant, Cat. B. B. M. xvii. p. 417.

I have found this bird up to the present only in Chirinda, where it is plentiful, though sometimes, doubtless when food in the forest is scarce, it will sally forth daily from the forest, singly, in pairs, or in parties, to feed elsewhere, returning in the evening, and I have little doubt that it will be found to utilize the other forest-patches of the district as bases to an equal extent. Its main food is afforded it by the crops of the various forest-species of *Ficus*, ripening at different times, and by the fruits of several other of the larger trees of the forest and veld; but in the winter it will also take toll of the passing swarms of locusts, one specimen which I examined last June having its stomach crammed with these insects. This example differed from the usual type in having a few rufous feathers behind and above each eye, and a nearly uniformly black crest, whitish spots occurring only on the cheeks; a casque and bill of the usual colour, but somewhat shorter and of a different shape, the front corner of the former, which usually projects at a fairly sharp angle, being rounded off.

The cries of these Hornbills are somewhat varied, but harsh in the extreme, something between the bray of a donkey and an idiotic laugh, and when a large mixed party of this and the following species are gorging themselves in the branches of a large fig-laden "Chisipi" or "Tsamvu," and break off the feast (till then, perhaps, interrupted only by an occasional short nasal sound of a conversational nature) to join, for a moment, all together, in one of their periodical noisy choruses, one involuntarily thinks of a diabolical midnight revel, somewhere in the lower regions, of maudlin Bacchanalians (*B. cristatus*) and lost souls (*B. buccinator*).

[This Hornbill is not included in Mr. W. L. Sclater's List, and is new to the South-African Fauna.—P. L. S.]

115. Lophoceros melanoleucus. Crowned Hornbill.

This is the Common Hornbill of the open bush and a frequent visitor to the forest, where, as in the bush-veld, it will sit bolt upright on the tops of the higher trees uttering its shrill piping call; in the winter it may be met with going about in pairs or in flocks, sometimes numbering as many as ten or fifteen individuals, while occasionally one individual or a pair is to be found availing itself of the Drongo's protection. It is curious to watch these birds flying at a great height overhead, as in crossing a valley, when they suddenly decide to descend; they first dive down perpendicularly, or nearly so, for a few yards, and pull up with a short horizontal swoop; then shoot down again in like manner, and so on until they reach the ground very little in advance of the point in the air from which they started: the evolution might best be described on paper by placing a number of capital J's, with long stems and short tails, head to tail, downwards. Though usually at first difficult to approach, they resemble the Parrot in the fact that when one of their number has been shot, the survivors return and remain about the spot.

The crops examined contained seeds, including those of some of the larger forest-trees, locusts, a large green bug, a large flower-beetle, and other beetles of various kinds. Length in the flesh 18·5 inches.

116. Hapaloderma narina. Narina Trogon.

I once met with this Trogon, in June or July last, sitting motionless on a branch on the outskirts of Chirinda; unfortunately I was much too close for a shot, and while I was retreating and changing my cartridge the bird flew into the forest and was lost. My boy, however, informed me that this species is occasionally met with in all parts of the district, though everywhere rare.

117. Campothera abingdoni. Golden-tailed Woodpecker.

I have shot only one of these Woodpeckers, in May, in the heart of Chirinda, but think it highly probable that it is this species which is so frequently met with in the forest-patches. I was first attracted by its loud laughing note, and found the bird busily engaged in eating ants which had made their nest in an upright decayed branch at some distance from the ground. It measured in the flesh 8·75 inches, and the stomach contained hundreds of a small black tree-ant in all stages of development, as well as a millipede.

Since writing the above I have secured a second example (a female) in Chipete, and watched another at close quarters in Chirinda.

118. Campothera bennetti. Bennett's Woodpecker.

Not an uncommon species in the open woods, particularly in the thorn-and-Jihu type of country.

119. Dendropicus cardinalis. Cardinal Woodpecker.

In numbers and distribution this species nearly resembles the preceding. I used frequently to see both at Mafusi, but I believe that neither frequents the patches of true forest.

120. Indicator variegatus. Scaly-throated Honey-guide.

I have seen only one specimen of this Honey-guide, a male trapped last May in Chirinda by means of a falling stone which I had set for *Xenocichla*, baited, strange to say, with a piece of guava. I can only suppose that Hymenoptera of some kind must have been attracted to the guava, and that the bird, in pursuing them, settled on the twig. The stomach contained only bees-wax. A Honey-guide, probably *I. minor*, is common throughout the Jihu, where honey is particularly abundant, but I have not yet secured specimens. The Abandawo have the usual native idea with regard to these birds, to the effect that, if a portion of the comb is not set aside for them, they will sometimes give the offender another chance by shewing him a second nest, but should he still prove ungrateful, will then infallibly lead him to a lion, a snake, or some other dangerous animal. The native always whistles in reply to a bird when following it.

121. Lybius torquatus. Black-collared Barbet.

Called by the natives "Mkweboro" (Tshindawo), in allusion to its call of "*kweboro! kweboro! kweboro!*" It is not an uncommon bird on the high veld, and I met with two or three examples on the Lower Umswirezi in November.

122. Barbatula bilineata. White-browed Tinker.

On emerging from the forest the other day, I suddenly found myself in the midst of a crowd of small forest-birds of all descriptions, flying in the bright sunshine about the branches of a couple of large Rauwolfias—always a favourite spot. They included a pair of these little Tinkers insect-hunting like the rest, and I was able to watch them from within a few feet for some time before being observed. I have since heard their note again at the same spot; it may be imitated fairly accurately by the syllable Q-ing! (using the Zulu Q).

123. Trachyphonus cafer. Levaillant's Barbet.

I found a skin of this Barbet in a Dutch farmhouse, ten miles to the north of Chirinda, in May 1901; and was informed that it had recently been shot close to the homestead.

124. Chrysococcyx smaragdineus. Emerald Cuckoo.

I heard the note of this species three or four times while passing through the valley of the Lower Umswirezi at the commencement of November, and Mr. Stanley informs me that he has obtained a specimen at Mafusi.

125. Chrysococcyx klaasi. Klaas's Cuckoo.

I shot one of these birds in a large thorn-tree close to the Umswirezi River on the same occasion. The crop contained nineteen small green caterpillars.

[In a letter Mr. Swynnerton informs us that the "contents of the stomach" described above (p. 73) as those of *Campophaga nigra* were really those of an example of the present species.—Edd.]

126. Chrysococcyx cupreus. Didric Cuckoo.

This Cuckoo was extremely common in the same locality at the commencement of November, in the stunted bush of the flats, passing from tree to tree with a low swooping flight and frequently uttering its characteristic call. I have also shot it in the Jihu, and it is not very uncommon in other parts of the district, where it prefers grass-jungle country.

127. COCCYSTES HYPOPINARIUS. Black-and-Grey Cuckoo.

I have seen several specimens of this species during the past season, and secured two in February and the commencement of March; it will probably prove to be a not uncommon summer visitor. The natives state that it always calls before rain. The crops examined contained numbers of large hairy caterpillars.

128. CENTROPUS BURCHELLI. Burchell's Coucal.

This species is common in the vleis and along the river-banks throughout the district, and is not infrequently found in grass-jungle country at great distances from water; I have seen several of its nests, placed low in a thicket near a stream or in a dense patch of grass-jungle, and domed and constructed as described by Mr. Darling (quoted by Mr. Marshall in 'The Ibis,' 1900, p. 253), but I have never noticed that mud entered into their construction in any way. A stomach examined contained beetles and grasshoppers. The native name of this bird is an imitation of its loud oft-repeated cry, uttered most persistently, they say, before heavy rains. There is no local prejudice against the flesh of the Coucal as is the case with the Zulus, amongst whom it is said to be eaten only by the old women; here it is regarded as fit food for all ages and sexes.

129. CENTROPUS NIGRORUFUS. Natal Coucal.

Found in the same localities as the preceding species, but not quite so common.

When what are now known as the Abandawo, says a native story, first came to the country, Mapungana, one of their chiefs (a hereditary title still in use), ordered the Coucal and the Fruit-Pigeon to serve out cloth to the people, who were naked. The Coucal first took the cloth, stretched it repeatedly, but every time laid it down again saying "*I-i-i-i*" (a negative implying reluctance, and in this case, of course, an imitation of the bird's note)—the stretch of cloth was too big; it was a pity to waste such good stuff on a lot of naked men! Finally it had to be distributed by the Fruit-Pigeon.

130. Turacus livingstonii. Livingstone's Touraco.

This lovely bird is the common Touraco of Chirinda, and is also found in the wooded kloofs and forest-patches of other portions of the district. Its call is a bold crowing "*kurrrr kurrrr-kurrrr*," several times repeated—harsh, no doubt, but to my mind exhilarating and by no means unpleasant, which may be heard at all times of the day, but particularly towards evening, and to a somewhat less extent in the early morning. It is a somewhat unsociable bird, usually going about in pairs, though sometimes, particularly at the close of the breeding-season, as many as four or five individuals—a family-party, probably—may be found about one spot, answering one another or crowing in chorus. Again, it is not unusual to see large numbers—a dozen or so—feeding together on the ripe fruit of some large forest-tree; but these merely collect for a common purpose, and, when satisfied, disperse singly or in pairs. In October 1901 two young birds, just getting their wing-quills, were brought to me; the nest, which I subsequently saw, was a rough flat structure of small sticks, placed about twelve feet from the ground in a small tree standing beside a stream in a kloof. One of these birds, when commencing to fly, abruptly ended its career in a bucket of milk; the survivor lived for two and a half years, becoming extremely tame and a most charming pet. On one occasion it was taken in the night, presumably by a wild cat, the aviary being in bad repair, and feathers and blood on the ground indicated that I should not see it again. What was my surprise later in the day to find Mr. Gwala-gwala on his accustomed perch, minus his tail and a good many other feathers and somewhat cut about the hinder parts, but as jaunty as ever, having returned of his own accord. I fed this bird chiefly on bananas, but when fruit was scarce it would eat mealie-meal porridge fairly readily and appeared to thrive on it. Though taking no notice of other birds placed in the same cage while it was still young, I have little doubt that later it would have proved aggressive, for on my shewing it a pair of young Purple-crested Touracos, not long before its death, it puffed up its velvety back-feathers, spread its wings and tail, and, leaning forward, crowed loudly several times and attempted to attack them through the bars. It was very fond of water, bathing in hot weather several times a day—merely, however, splashing the water over itself a few times and then at once making for a sunny perch, where it drooped its wings and spread out its tail- and rump-feathers to dry. According to the natives, the eggs of this species are always two in number and pure white. In my tame bird, and in all others which I have examined, the bill and eyelids have been carmine. The length of this bird in the flesh is from 17 to 18 inches. The stomachs examined contained wild figs and other fruits, whole or nearly so; I found three-fourths of a wild fig 1·25 inch in diameter in one of them.

131. GALLIREX PORPHYREOLOPHUS. Purple-crested Touraco.

This is the Touraco of the open woods, and is particularly fond of the large trees and clumps of dense bush growing on ant-heaps; it may often be seen flying from clump to clump, and traversing each with three or four long hops before proceeding to the next. I have never found it in the forest. It is a bold and strikingly-coloured bird, but quite lacks the grace and soft beauty of the preceding species. Two young birds were brought to me by a native in February 1905; he stated that the nest was placed in a bush, ten or twelve feet from the ground, and resembled that of a Dove, and that two was the usual number of the clutch. One of these fledglings has survived, having been kept till recently in a large aviary with a number of other birds, towards which, however, it has become very aggressive. It is extremely inquisitive, and its curiosity appeared to be first aroused by the metallic spots on the wings of the Tympanistrias; these it attacked, plucking out the coloured feathers, and on finding that no resistance was made, proceeded to completely strip the backs of its victims and to attack the Haplopelias. It has thus, from time to time, killed a good many of the Doves, apparently out of sheer exuberance of spirits, for it never attempts to eat either the feathers or the birds themselves. Just after sunset it becomes particularly lively and aggressive, taking long hops from perch to perch, crowing, and giving a peck here and a peck there to each of the Doves, already sleepy and settling down for the night, as it passes: then it returns, never assailing any individual persistently, but finally sometimes felling one by dint of repeated attacks—for they merely sit still and cower. When one falls to the ground the Touraco descends, gives it the *coup-de-grâce,* in the form of two or three sharp blows on the back of the head, and then resumes its sport. It never attacks the Roller, the Parrot, or the Bulbuls, having found probably that these birds resent its first attempts in that direction. It feeds readily from the hand and, after a meal, retires to some higher branch and there sits, puffed out and lethargic, with its head well down between its shoulders, making a continual slight rasping noise, comparable perhaps to snoring, for half an hour or more: when in this condition it greatly enjoys having its breast stroked. Not infrequently it will eat a few small grasshoppers; but it is clumsy with regard to the larger locusts, going about and bruising them on the branches somewhat after the manner of an insectivorous bird, but usually letting them drop after a few seconds. When annoyed, or hungry and excited by the sight of food, it will utter a loud quick "*ká-ka-ká-ka-ká!*," a note common to both Touracos, and frequently heard in the forest. It is exceedingly tame, but when outside the aviary will not come to the hand so readily as would my *T. livingstonii,* seeming to take an impudent delight in teasing its pursuer. Its running powers are remarkable: being at large on one occasion when I had to leave home for a few days, it had to be captured, and when, after a long chase amongst the gum-trees, it took to the ground—cultivated but bare—it ran, apparently not thinking of flight, for a distance of more than two hundred yards before I myself and seven Kafirs, close on its heels from the start, could secure it; it was then considerably exhausted. This Touraco may frequently be seen running along the horizontal branches of large trees, but its speed on this occasion and the distance covered were a revelation to me. The natives believe that, should a Touraco fly across the road and call, it indicates that they will find a buck or a beer-drink on ahead; its crimson wing-quills are greatly prized by them, and in former times used to be reserved for the king.

132. Schizorhis concolor. Grey Touraco.

The "Go-away" Bird does not occur, so far as I am aware, on the highlands, but it is said to be common in the Sabi Valley. It is good eating, and I well remember an excellent meal made off these birds in June 1899, on the Odzi, where they were common in the bush bordering the river. My companion at first refused to touch them, but, doubtless persuaded thereto by my evident enjoyment, and by the fact that we had no other meat, he finally made the attempt and was quite converted by the first mouthful. Strange to say, our Kafirs, a Matabele and a Mashona, refused to touch the meat, though they had eagerly devoured Hawks a few days before. I have found the flesh of *Turacus livingstonii* to be also excellent. I was once informed by a native that the people regard the "Umdhluwe" as a spy, believing that it will inform of any crime or wrong action which it may witness, and are consequently careful of their behaviour in its presence: should this be at all generally believed, a tame "Go-away" would be a most desirable acquisition in the house! Its nest, they state, resembles that of the preceding species.

133. Pœocephalus robustus. Le Vaillant's Parrot.

This is the common Parrot of Chirinda and of the highlands in general; I also found it in Gunye's country, low veld east of Mafusi's, in June 1900. The birds leave the forest daily at sunrise, and fly, screaming, in parties of from two to eight, to their feeding-grounds throughout the surrounding country, frequently covering considerable distances. At sunset they return, settling on the bare topmost branches of the tallest lightning-struck Khayas, which generally protrude above the general forest-level, and after a short halt for rest and conversation—their notes when settled are mostly of a milder and more conversational nature than the harsh screams uttered in flying—proceed towards the heart of the forest. I have never found one of their actual roosting-places. They are extremely punctual, and on misty mornings or rainy days, when without a clock, the shrieks of the Parrots passing overhead have frequently been my only indication that it was time to commence or to knock off work. The natives, too, regard them in the light of timepieces in such weather. Though as a rule shy and extremely difficult of approach, if one of a party has been shot or merely slightly wounded the rest will circle round with loud cries, returning time after time to the same spot, and I have little doubt that, if anyone should so desire, he might sometimes kill every bird. Apparently adults of this species do not take kindly to confinement; out of several which, to my knowledge, have been caged in this neighbourhood, not one appears to have survived for more than a few weeks. According to the natives, in the Jihu and other parts where Kafir-corn (*Sorghum*) is grown the Parrots are in the habit of biting off the ripe heads and carrying them away to hollow trees, where they lay up a store for the time when the crops are off the land.

134. PŒOCEPHALUS FUSCICAPILLUS. Brown-headed Parrot.

A single specimen of this Parrot was brought to me in April 1895 by a native, who had caught it with bird-lime in the Jihu; it lived in my aviary till November, when it died. Though wild enough for a time, it was remarkably tame for a fortnight or so before its death, climbing down daily to my hand and picking the grains from a mealiecob; it was noticeably sick only for a day before its death. This sudden tameness before death appears not to be uncommon, Mr. Marshall informing me that he has seen several instances of it in his aviary at Salisbury.

135. Pœocephalus meyeri. Meyer's Parrot.

I saw a good many of these little Parrots in Gunye's country, east of the Sitatonga forest, in June 1900, and am informed that this is the common species of the Sabi Valley. I do not remember having seen it on the highlands.

136. Strix flammea. Barn-Owl.

I have never myself seen this species here, but Kafirs, when shown my Salisbury skin, have invariably recognised it, imitating its cry more or less correctly, and stating that it is not very uncommon. Though looking on this Owl as a bird of ill-omen, they do not regard it, or, for that matter, *Syrnium woodfordi*, with the same dread as they do *Bubo lacteus*.

The look of intense wisdom on an Owl's countenance is remarked by the natives, and they usually represent it in their stories as a somewhat silly person with a vast idea of his own intellect: one story, too long to quote in full, makes the Owl cut rather a poor figure beside the Parrot, which they regard as a distinctly clever bird.

137. Bubo maculosus. Spotted Eagle-Owl.

This is the common Owl of the open woodlands, usually roosting in trees, though on one or two occasions I have put it up out of long grass. I have once seen it on the outskirts of Chirinda, but do not believe that it frequents the large forest-patches to any extent. As in Europe, the Owl is here regarded as a bird of evil omen, its cry over a hut in which a person is lying sick being said to destroy all hope of recovery, and in any case to presage death or disaster. The stomach of one of these birds contained a number of large weevils, swallowed whole.

138. Bubo lacteus. Verreaux's Eagle-Owl.

As elsewhere, this Owl is said by the natives here to feed chiefly on Guinea-fowls, and it will also occasionally make a descent on a poultry-yard; my neighbour, Dr. Thompson, having had fowls taken by it for several nights in succession. The Kafir superstitions with regard to Owls in general reach their height in reference to the present species. They state that it will sometimes swoop down and strike on the back of the head a person travelling by night, and that on arriving at home he will find his wife, his children, or other near relatives dead or dying, or, failing that, that he will himself infallibly die within a short period. No one will attack one of these birds or fire at it with a bow, fearing disaster; and even should one have been accidentally caught in a trap, they will cut it loose with a long knife or assegai, taking care not to touch it with their hands. Again, should an Owl take up its abode in a tree close to a kraal and hoot there night after night, the inhabitants will desert the spot. The witch-doctors are said to have no "medicine" strong enough to ward off disaster from an Owl-struck person.

139. Syrnium woodfordi. Woodford's Owl.

The common Owl of Chirinda, where it may be heard any evening on entering the forest; its usual call resembles the words "Who-are-you?" the middle syllable being slurred and a long stress placed on the last, and is distinctly pleasing. The adult has an unusually human expression. A stomach examined contained a grasshopper, a longicorn and other beetles, and some fur, probably of a mouse; but it is quite likely that these Owls will also take roosting birds, as I have caught one with a noose set high in a tree and baited with a small bird. Two adults measured in the flesh 12·5 and 13·5 inches respectively; the cere and legs were of the same shade of Naples yellow; the iris was very dark brown. At the end of October a young bird, then a mere ball of white fluff, which had doubtless fallen from a nest in one of the forest-paths, was brought to me by a friend who had picked it up; it is still alive and flourishing. I feed it on locusts, grasshoppers, the livers of fowls, and the bodies of any birds that I shoot or trap.

140. FALCO BIARMICUS. South-African Lanner.

A few months ago I saw and fired at one of these fine Falcons, when a pair were flying overhead on the outskirts of Chirinda, but failed to secure it.

141. TINNUNCULUS RUPICOLA. South-African Kestrel.

This is the commonest of our smaller Hawks, and the only Kestrel which I have actually shot in the district, though I have seen what I took to be *T. naumanni* on various occasions. The present species may not infrequently be observed perched on a stake or dry tree, sometimes in the centre of a cultivated field.

142. BAZA VERREAUXI. Cuckoo Falcon.

I first shot one of these birds in the neighbourhood of Salisbury, but I have in my Gazaland collection a second skin, unlabelled, about which I have no clear recollections. Presumably I obtained it in the neighbourhood of Mafusi some years ago.

143. AQUILA RAPAX. Tawny Eagle.

In July last I shot a fine female of this species about ten miles to the north of Chirinda; it was sitting on the top of a low tree feasting on two full-grown Ravens (*Corvultur albicollis*), which it had just killed, and it allowed the trap and mules to get within thirty yards of it without moving. Again, at the beginning of this month (March) I saw another of these birds at close quarters, perched on a horizontal bough; at a little distance was a large flat structure of sticks, placed in the fork of a tree, which may have been its nest, but I was unfortunately too much pressed for time to make my way through the grass-jungle to investigate it.

144. AQUILA WAHLBERGI. Wahlberg's Eagle.

Not uncommon. I have seen it in various parts of the district.

145. Lophoaëtus occipitalis. Crested Hawk-Eagle.

This is our commonest Eagle, being met with throughout the highlands, inclusive of Mafusi and the Jihu. I found it particularly plentiful in January on the Lower Zona and its tributaries, where it used to follow the stream, in search, the natives said, of "mabuzi" (voles), flying a short distance and settling on some conspicuous tree or stump, whence, after a short stay, it would again move on. Our local natives, unlike the Zulus, regard this as a very wise bird, saying that it knows everything. Should a man have had a goat taken by a wild beast and be following the aggressor, or should he be overtaken by nightfall while searching for lost cattle or small stock, and have the good fortune to come on an "*Ifinye*" moving its crest from side to side as is its wont, he will immediately follow its general direction, the opposite to that in which the bird is looking; should the crest, however, remain at rest, the bird knows nothing about the matter in hand. Again, should it perch in a tree close to a kraal, as in winter it will probably not infrequently do (for I have myself noticed that these birds then roam over the country, away from the rivers, to a greater extent), the inhabitants will call to it repeatedly, "Finye, Finye, doro riripi?" (where is the beer), and on its commencing to move its crest in the manner described, will note to which other kraal it points and troop off thither *en masse*, in full expectation of finding a beer-drink in progress. Should they, however, be disappointed (they say they seldom are!), they do not conclude that the bird was wrong, but merely that it must have been referring to some other kraal further on, and certainly at the above-mentioned time of year one could not visit many kraals in any given direction without finally coming on a beer-drink.

146. Helotarsus ecaudatus. Bateleur Eagle.

This handsome Eagle is not very uncommon, being usually seen sailing high in mid-air.

147. Circaëtus pectoralis. Black-breasted Harrier-Eagle.

A common species so far as any of the Accipitres, with the exception of *Lophoaëtus occipitalis*, *Milvus ægyptius*, and perhaps *Aquila wahlbergi*, can be said to be common in this district, as compared with the more northern portions of Mashonaland. It is exceedingly bold, carrying off fowls from the homesteads and Kafir kraals, and living, the natives state, chiefly on hares, snakes, and Guinea-fowls, with an occasional blue-buck or monkey. On one occasion, near Salisbury, when I had shot a wild Duck, one of these birds, which had been hovering high overhead, had the impudence to carry it off. I had got out of range in an attempt to find a fordable spot in a stream. The ceres of the two specimens shot by myself were of a pale greenish grey colour and the legs paler still, whitish—evidently the colour referred to by Mr. Marshall, not olive-yellow. One of these birds had swallowed a stick nearly three inches in length; this was worn smooth by the action of the stomach, which also contained beetles.

In connection with this Eagle, the natives have a folk-tale which professes to account for the relations at present existing between Hawks and the weaker birds. Long ago, they say, the Eagle invited his cousin, the Dove, to accompany him on a visit to his wife's relations; on the road they halted, and, rubbing their fire-sticks, produced a blaze, at which the Dove commenced to warm up the cooked beans and porridge which he had thoughtfully brought. The Eagle, however, had brought nothing, and the Dove, ascertaining this, refused him a share of the food. They thereupon quarrelled, and the Eagle, flying up into the tree overhead, watched the Dove for some time as it cooked its food, and finally pounced upon it, killed and ate it, thus founding a custom which has continued to this day.

148. Asturinula monogrammica. African Buzzard-Eagle.

I have met with this Hawk in the open woods between Chirinda and the Buzi, and also in the neighbourhood of the Sitatonga range, but it is nowhere common.

149. Milvus ægyptius. Yellow-billed Kite.

This is the most plentiful, for a few months, of all our birds of prey. It first appears in September, and the Kafirs regard its coming as a signal to prepare the ground for the season's crops. For some time after its arrival it may be seen wherever a grass-fire is in progress, seizing the locusts and other insects as they fly from the flames and eating them, held firmly in one claw, while on the wing. It also accompanies the swarms of locusts, and during this time is not so troublesome to the poultry-yard as a little later, during the breeding-season. At the end of October I found a pair nesting high in a large African mahogany (*Khaya senegalensis*) close to the homestead of one of my neighbours. The nest, which was inaccessible, was a large structure of sticks. This species leaves us in February, and the local natives believe that at that time it retires to a hollow tree, where it has already laid up a store of dried meat (small birds, mice, lizards, &c.) and a quantity of locusts, and there, losing all its feathers and becoming perfectly bald and blind, remains in a helpless state, sustained by its store of meat and locusts, till the following spring, when its feathers grow, its eyes regain their sight, and it sallies forth to once again harry the chickens for a season.

150. Astur tachiro. African Goshawk.

Mr. Stanley writes that he has just obtained one of these birds at Mafusi.

151. Astur polyzonoides. Little Banded Goshawk.

By no means so plentiful as in the neighbourhood of Salisbury. I kept a pair of young birds for a short time last spring, but they were exceedingly quarrelsome and finally had a battle royal, in the course of which the stronger bird slew and ate her brother, subsequently herself dying of her wounds.

152. Circus macrurus. Pale Harrier.

Occasionally seen skimming over the hills with its low graceful flight: at least one individual, and possibly more, remained with us throughout the past winter, and was to be seen almost daily beating over an early "burn" in the immediate neighbourhood of my homestead.

153. Gyps kolbii. Kolbe's Griffon.

I saw numbers of these birds in Gunye's country in 1900, and they appear to be extremely abundant throughout the low veld, where the number of bucks killed by wild animals ensures a constant food-supply. Vultures are seldom or never seen on the highlands, and even during the recent deadly outbreak of African coast-fever, when the cattle were dying by hundreds, the Ravens were the only birds which came to feast on the carcases. One of these Vultures, gorged and brought to bay, once attempted to attack me.

154. Serpentarius secretarius. Secretary-Bird.

I have frequently observed this bird in pairs on the open hills covered with short grass, which surround Melsetter.

155. Phalacrocorax lucidus. White-breasted Duiker.

Fairly plentiful on all the larger streams.

156. Ciconia alba. White Stork.

In November a number of these birds arrived with a swarm of locusts, and remained for a considerable time stalking about my cultivated lands and devouring the locusts which were covering the ground. They were very tame, allowing me to approach within thirty yards, and then merely walking away at the same pace as myself and occasionally looking back while continuing their feast.

157. Ciconia nigra. Black Stork.

I have seen this "Locust-bird," as the Storks are locally called, on several occasions each winter for the past three years, but it usually passes over at a great height. Last October, however, in company with Mr. Marshall, I had an opportunity, for the first time, of observing these birds at closer range, as they flapped slowly backwards and forwards through a large swarm of locusts which was settling on the outskirts of Chirinda. On my attempting to procure a specimen, they did not make off at once, but rose gradually in ever-widening circles until they had reached the required elevation.

158. Leptoptilus crumeniferus. Marabou.

I am informed by Mr. J. Ballantyne that he has met with this bird on the Sabi.

159. Scopus umbretta. Hammerkop.

Occasionally seen flying overhead and doubtless commoner in the neighbourhood of the rivers. The natives have a superstition to the effect that anyone burning the nest of this bird will go mad, and will follow the bird in its wanderings until he dies of exhaustion. They further believe that if a "Tegwan'" crosses their path it is a sign that they must turn back and abandon their enterprise for the day, whereas if it flies straight ahead or straight back it is safe to proceed. The appearance of one of these birds near a kraal is considered unlucky and a witch-doctor is promptly consulted. It is believed that they will sometimes visit the hut of a witch-doctor unseen and abstract some of his medicine or charms, carrying them off to their nest. The doctors, on the other hand, will sometimes raid the home of the bird in search of odds and ends to add to their pharmacopœia, for the Tegwan is regarded as a powerful medicine-man and ordinary Kafirs are afraid to meddle with its possessions in any way.

160. Herodias garzetta. Little Egret.

I am told that of late one of these Egrets has frequently been seen feeding amongst the cattle of my neighbour, Mr. J. A. Jansen; and I have heard of other instances from time to time, though I do not remember to have observed the bird here myself.

161. Pœcilonetta erythrorhyncha. Red-bill.

This is the only Duck which I have so far had an opportunity of identifying, though two other species appear to occur commonly enough in the district, one of them being, I believe, *Anas sparsa*.

162. Vinago delalandii. Delalande's Green Pigeon.

Extremely common throughout the district and usually to be found feeding in flocks wherever wild figs or other ripe fruits are to be had, while frequently visiting the forest-patches for food, though in this case it seldom descends below the upper branches of the trees. It is evidently double-brooded, as I have had the young brought to me in October and again have found a nest with eggs—the usual frail structure of sticks, about ten feet from the ground—in Chirinda (somewhat to my surprise) in January; the large wild fig-trees which are scattered through the more open country are favourite nesting-sites. They are stolid birds, those in my aviary, even when freshly caught, allowing me to approach quite close before moving, and merely staring stupidly though quite evidently in fear. The call is a piping "*kureti, kureti kureti,*" followed by a harsh "*kurrrr.*" The natives say that one individual out of a flock will sometimes purposely give a false alarm, returning immediately and enjoying the feast alone.

163. TURTUR SEMITORQUATUS. Red-eyed Dove.

Though this species is not nearly so common in some parts of the highlands as the following, I have nevertheless met with it frequently enough throughout the district, and in the Jihu it quite takes the place of *Turtur capicola* as the common Dove of the Kafir kraals. It is also extremely abundant in the Mafusi country. When Chirinda offers any special attraction, as at the time of the ripening of the berries of the "Musuguta," a large Euphorbiaceous tree, these Doves may be seen flying thither in parties of three or four, though at other times they prefer the open woods or the neighbourhood of streams. The note is imitated by the natives as "*ku! ku! hambá'sikú!*" the words (Coo! Coo! Go by night!) being presumably purely fanciful and without reference to any habit, real or imaginary, on the part of the bird. I at present (end of March) know a nest, a somewhat solid structure, built solely of sticks, fifteen feet from the ground, on which the bird is sitting on two eggs.

164. TURTUR CAPICOLA. Cape Turtle-Dove.

This, the common Dove of the mountains, is found in considerable numbers in the neighbourhood of Kafir kraals and homesteads. It is extremely tame, and the individuals frequenting my gum-trees come readily to any food which may be thrown down. The call resembles the syllables "*ku-kōro! ku-kōro!*" often repeated, the middle one long-drawn. The birds in my aviary frequently call at night.

165. TURTUR SENEGALENSIS. Laughing-Dove.

A Dove which I shot in the open bush of the Umswirezi Valley on the 1st of November was, I think, undoubtedly referable to this species. The skin was unfortunately lost.

166. ŒNA CAPENSIS. Namaqua Dove.

Rather locally distributed, appearing to prefer grass-jungle country: I found it common enough in the Shikamboge Valley in the winter of 1899, and it is plentiful on the Jihu-covered hills between Spungabera and the Inyamadzi, a few miles east of Chirinda.

167. HAPLOPELIA LARVATA. Lemon-Dove.

Extremely common in Chirinda, though more frequently heard than seen, for it is exceedingly shy and keeps closely to the undergrowth when startled from the ground where it has been feeding. Several stomachs examined contained the seeds of such trees as happened to be fruiting, and in one case tender green leaves—with, usually, a few small snails, the shells aiding, I imagine, in digestion, for grit must be somewhat hard to obtain in the loamy soil of a great portion of the forest. I have kept as many as thirty of these Doves in a large aviary at one time, and though they finally lose their excessive fear of a human being, they remain extremely nervous, a very slight alarm at night being sufficient to set the whole number in a senseless flutter. This disturbance, once started, is repeated at frequent intervals till morning, when two or three of the birds may be found on the ground in an exhausted condition. They are unusually gentle and sweet-tempered for Doves, and, were it not for this unfortunate nervousness, would make excellent pets.

I have noticed two distinct types—one duskier as regards both breast and forehead; the other and, I should say, rather the commoner type, somewhat brighter generally with a pure white forehead; I have supposed that the latter might possibly be *H. johnstoni* Shelley (Ibis, 1893, p. 28, pl. iii.).

These Doves appear to be single-brooded, commencing to lay early in January with the ripening of the "Umkuhlu" seeds (*Trichilia dregeana*). This is a most unfortunate time, for the forest is then filled with women and children gathering the seeds in baskets for the purpose of oil-making, who, though they do not themselves eat the eggs, take all that they can find, beating them up and cooking them as food for their infants: they also use the eggs of this bird, of *Tympanistria*, and of other large species for anointing swellings of a venereal nature with a view to reducing the inflammation.

The nest is a flimsy and transparent platform of small sticks, placed in a shrub or sapling at a distance of from six to fifteen feet from the ground; the eggs, of the usual elliptical form, two in number and creamy white in colour, measure from 29 to 31 mm. in length by about 23 in breadth. One of the birds in my aviary (a brightly-coloured individual) commenced to build at the end of December, and would quite likely have bred had it not been killed by some Duikers which I had placed in the same building. Length in the flesh 10·75 to 11·12 inches. Iris, legs and feet, eyelids and patch in front of eye carmine; bare skin round the eye, soles and back of the tarsi pale grey; bill black. The call is a deep *"iwoo! iwoo!"* usually repeated several times, slowly.

168. TYMPANISTRIA BICOLOR. Tambourine Dove.

This charming little Dove is hardly less common in Chirinda than the preceding species, which it resembles in its shy and retiring habits, in its food, and, according to a native informant, in its time of nesting. Last November, however, I was shown a nest in course of construction, so that possibly two broods are reared in the year; it was a flimsy structure of twigs, with a little moss, and was placed somewhat conspicuously, about three and a half feet from the ground, in the fork of a shrub. The low, mournful call of this bird is translated by the natives into quite a long complaint, which runs as follows, with frequent pauses: "This year I have not slept: sleep has not come: I am surprised at these people—they have come and taken my children: I am distressed—bereaved; ku ku," &c. A number of these birds in my aviary shew the same excess of nervousness as the Haplopelias.

Length in the flesh 8·25 to 8·8 inches. Iris brown; legs dusky purple; bill blackish, basal half with a strong purplish tinge.

169. CHALCOPELIA AFRA. Emerald-spotted Dove.

I shot one of these birds in January in the Jihu, where they seem to be fairly common along the course of the Kurumadzi.

170. FRANCOLINUS COQUI. Coqui Francolin.

On one occasion only have I put this bird up in this district, between Chirinda and the Buzi, and I have never heard its call. I am informed, however, that it is found in the Sabi Valley.

171. FRANCOLINUS SHELLEYI. Shelley's Francolin.

Comparatively plentiful throughout the district, though less abundant than the so-called Pheasant (*Pternistes*). Its characteristic call is one of the commonest sounds of the early morning, and is rendered by the natives as "*Pimbira* (a leg is said to be raised as the bird says this) *kokwe* (leg down), *Pimbira kokwe!*" To myself the cry sounds most like "*Tel-él-kebír,*" repeatedly uttered.

172. PTERNISTES NUDICOLLIS. Red-necked Francolin.

This is the commonest Francolin of the district, particularly in grass-jungle. It is a most provoking bird to anyone stalking a buck, for it is extremely wary, apparently capable of detecting his presence at a considerable distance, and gives the alarm by rising suddenly with a clamour like that of a frightened Blackbird, but far louder. It is destructive to the natives' crops, and they have to watch morning and evening to prevent its entering their fields.

173. Numida coronata. Crowned Guinea-fowl.

Common everywhere, though less so in the Jihu and the Umshanetzi foot-hills, where its place is taken by the following species. The natives will not eat the head of this bird, believing that, should they do so, any children which they may beget will possess a permanent bald strip through the centre of the crown, corresponding to the Guinea-fowl's horn. "*Tapera, tapera, tapera!*" (we're finished, we're finished, &c.) is their rendering of the call of this bird.

174. Guttera edouardi. Crested Guinea-fowl.

I have on several occasions met with a handsome Crested Guinea-fowl in the dense jungle of the Jihu and the Umshanetzi, where it goes about in huge flocks, but I have no specimen in my collection and it is about six years since I handled one; my impression, however, corroborated by natives, is that the spotted plumage is continued over the whole breast. According to them, there are two kinds of " ndhori," the second, a somewhat solitary bird, distinctly larger than the other and with a black breast, occurring chiefly in the forest and the denser thickets. I have on two or three occasions put up Crested Guinea-fowls in Chirinda singly or in pairs, but always supposed them to be identical with the common species of the foot-hills. The call is not unlike that of the Common Guinea-fowl, but possesses a peculiar break which serves at once to distinguish it.

175. Limnocorax niger. Black Crake.

I saw several of these birds at the beginning of June 1900, on the water-lilies of the Amanzimhlope, a stream in Gunye's country.

176. Gallinula chloropus. Moor-Hen.

Observed on the Chinyika at the end of October; probably not uncommon on all our larger streams.

177. Otis melanogaster. Black-bellied Bustard.

Common on the grassy hills of Northern and Southern Melsetter.

178. Totanus glareola. Wood-Sandpiper.

Obtained by Mr. Stanley near Mafusi's.

179. Lobivanellus lateralis. Wattled Plover.

Comparatively common along streams and vleis throughout the high veld.

180. Struthio australis. Southern Ostrich.

The Ostrich is said to be abundant south of the Umswirezi.

XIII.—*Notes on the Parrots.* (Part VIII.)

By T. Salvadori, H.M.B.O.U.*

Fam. V. PSITTACIDÆ.

Subfam. PLATYCERCINÆ (Cat. Birds Brit. Mus. xx. p. 539).

PLATYCERCUS Vig.

Platycercus elegans (Gm.); North †, Rec. Austr. Mus. v. pp. 265 (xanthochroism), 266 (melanism) (1904).

Platycercus elegans × *P. eximius* North, t. c. p. 267.

Platycercus nigrescens Rams.; Sharpe, Hand-list, ii. p. 37, n. 4 (1900).

Platycercus elegans nigrescens Rob. & Laver. Ibis, 1900, p. 645 (Bellenden Ker).

Robinson and Laverock mentioned several specimens of this race as having the feathers of the head, hind-neck, and back not almost black, as stated by Ramsay, but dark red, and uniform in colour with the lower surface.

Platycercus amathusia Bp.; Rob. & Laver. Ibis, 1900, p. 645; Le Souef, Emu, iii. p. 55 (eggs) (1903).

"Like many specimens of its near ally, *P. pallidiceps*, the present species is frequently irregularly flecked with red about the head." (*Rob. & Laver.*)

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* Concluded from p. 151.

† *Cf.* "On Heterochrosis in Australian *Psittaci*" (Rec. Austr. Mus. v. pp. 265–268, 1904).

PLATYCERCUS BROWNII (Temm.); Hartert, Nov. Zool. xii. p. 213 (1905) (N.W. Australia).

Dr. Hartert makes some interesting remarks about the moulting of this species.

PLATYCERCUS EXIMIUS (Shaw); North, Rec. Austr. Mus. v. pp. 265 (xanthochroism), 267 (erythrism) (1904).

PLATYCERCUS MASTERSIANUS Ramsay; Salvad. Cat. B. xx. p. 541 (note) (1901); Sclat. P. Z. S. 1902, i. p. 170, pl. xix.; North, Rec. Austr. Mus. v. p. 267 (1904) (hybrid).

Mr. North declares *P. mastersianus* to be a hybrid, but he does not suggest the parents.

PLATYCERCUS XANTHOGENYS Salvad.

Platycercus icterotis xanthogenys Hartert, Nov. Zool. xii. p. 212 (1905).

Hab. North-western Australia.

The habitat of this species, described by me from a single specimen in the British Museum, was unknown when I wrote; but the Tring Museum has now received several specimens from Beaufort and Cranbrook.

BARNARDIUS Bp.

BARNARDIUS BARNARDI (Lath.).

Platycercus barnardi North, Rec. Austr. Mus. v. p. 266 (xanthochroism) (1904).

P. barnardi × *P. flaveolus* North, t. c. p. 267.

BARNARDIUS MACGILLIVRAYI (North).

Platycercus macgillivrayi North, Victorian Natural. xvii. pp. 91–93, 113–114 (1900); Sclat. Bull. B. O. C. xii. p. 52 (1902); id. Ibis, 1902, p. 610, pl. xv.; id. Bull. B. O. C. xiii. p. 51 (1903).

Barnardius macgillivrayi Salvad. Ibis, 1902, p. 610.

Nearly allied to *B. barnardi*, but differing as follows:—There is no red frontal band, the forehead is more bluish green, with a slight touch of yellow, the back is lighter green, the upper tail-coverts have a yellowish tinge, the breast is distinctly yellowish green, and the abdomen extensively yellow.

Hab. Cloncurry District, N. Queensland.

Barnardius zonarius (Shaw).

Barnardius zonarius zonarius Hartert, Nov. Zool. xii. p. 213 (1905).

Barnardius occidentalis (North); Sharpe, Hand-list, ii. p. 38, n. 4 (1900); Salvad. Ibis, 1902, p. 610.

Platycercus zonarius North (nec Shaw), Pr. Linn. Soc. N.S.W. (2) iv. p. 1025 (1889) (Roeburne, N.W. Australia).

Platycercus occidentalis North, Rec. Austr. Mus. ii. p. 83 (1891) (Roeburne, N.W. Australia).

Barnardius zonarius occidentalis Hartert, Nov. Zool. xii. p. 213 (1905) (Point Cloates).

"In the disposition of its markings *P. occidentalis* resembles *P. zonarius*, but it differs from that species in having light blue instead of dark blue cheeks; in the greater extent of the conspicuous lemon-yellow of the lower portion of the breast and the whole of the abdomen, *which extends as far* as the vent, instead of the deep gamboge-yellow of the centre of the abdomen only; in the verditer-green of the chest, back, wings, scapulars, and interscapular region, instead of dark green, and in the absence of the narrow black band immediately below the collar. . . . Total length 14·5 inches; wing 6·5; tail 8·45; bill 0·9; tarsus 0·8." (*North.*)

Hab. Roeburne, North-west Australia.

Psephotus Gould.

Psephotus chrysopterygius Gould; Sclat. P. Z. S. 1897, p. 966 (♂ ♀ alive); North, Rec. Austr. Mus. iii. no. 4, pp. 87–89 (living example) (1898); Sclat. P. Z. S. 1902, i. p. 171 (living examples).

Psephotus dissimilis Collett, P. Z. S. 1898, p. 356 (Mary River, Arnhem Land); Sharpe, Hand-list, ii. p. 139, n. 5 (1900); Hartert, Nov. Zool. xii. p. 214 (Nelly Creek, N. Territory) (1905).

"Nearest to *P. chrysopterygius* Gould, but lacks the yellow band across the forehead; the crown is chestnut [according to Dr. Hartert, dark brown], the lower parts are verditer-blue (in the male); the under tail-coverts orange. Wing 123 mm." (*Collett.*)

Hab. Arnhem Land.

PSEPHOTUS MULTICOLOR (V. & H.); Hall, Victorian Natural. xv. p. 146 (South-western Australia) (1899).

PSEPHOTUS HÆMATONOTUS (Gould); North, Rec. Austr. Mus. v. pp. 266 (xanthochroism), 267 (traces of albinism) (1904).

NEOPHEMA Salvad.

NEOPHEMA BOURKEI (Gould); North, Rec. Austr. Mus. v. pp. 267, 268 (var., Western Australia) (1904); Astley, Avic. Mag. (2) iii. pl. to p. 239 (1905).

A new locality.

CYANORHAMPHUS Bp.

CYANORHAMPHUS ERYTHRONOTUS (Kuhl); Forbes & Robinson, Bull. Liverp. Mus. i. p. 21 (1897) (Tahiti).

The Liverpool Museum possesses two examples of this extinct species: one, collected by Sir Joseph Banks, is the type (probably) of the *Red-rumped Parrot* Lath. Gen. Syn. i. p. 249, n. 50.

CYANORHAMPHUS UNICOLOR (Vig.).

Pezoporus (!) *fairchildii* Hector, Tr. N. Zeal. Inst. xxvii. p. 285 (Antipodes I.) (1895); Sharpe, Hand-list, ii. p. 41, n. 2 (1900).

Cyanorhamphus unicolor Lorenz, Ann. Hofmus. Wien, xvii. p. 316 (1902); Ogilvie-Grant, Ibis, 1905, p. 579 (Antipodes I.); Buller, Suppl. B. New Zeal. ii. p. 81, pl. ix. (1905).

Iris red (*F. W. Hutton*).

CYANORHAMPHUS NOVÆ ZEALANDIÆ (Sparrm.); Lorenz, Ann. Hofmus. Wien, xvii. p. 313 (1902); Ogilvie-Grant, Ibis, 1905, p. 580 (Dusky Sound, South I.); Buller, Suppl. B. New Zeal. ii. p. 83 (1905).

Iris red (*F. W. Hutton*).

CYANORHAMPHUS MAGNIROSTRIS Forbes & Robinson, Bull. Liverp. Mus. i. p. 21 (1897) (Tahiti); Sharpe, Hand-list, ii. p. 40, n. 4 (1900).

"In general coloration similar to *C. novæ-zealandiæ* Sparrm., but larger, especially the head and beak; upper mandible long and pointed.... Length 13·5 inches; wing 5·7; tail 7·9; bill 1·04." (*Forbes & Robinson.*)

Hab. Tahiti (?).

The type of this species is preserved in the Liverpool Museum; I should say that it requires further examination.

CYANORHAMPHUS AUCKLANDICUS Bp.; Ogilvie-Grant, Ibis, 1905, p. 580 (Adam I., Auckland Islands).

Iris black (*F. W. Hutton*).

CYANORHAMPHUS COOKI (G. R. Gr.); Salvad. Ibis, 1893, p. 466.

Cyanorhamphus rayneri (G. R. Gr.); North, Pr. Linn. Soc. N.S.W. (2) vii. p. 393 (1892) (egg).

CYANORHAMPHUS ERYTHROTIS (Wagl.); Rothsch. P. Z. S. 1893, p. 530 (part., Macquarie Is. only?); Sharpe, Hand-list, ii. p. 40, n. 8 (part.) (1900).

Probably extinct, at least "the late Captain Fairchild informed [Sir W. L. Buller] that he had never been able to get any evidence as to the existence of a Parrakeet on Macquarie Island."

CYANORHAMPHUS HOCHSTETTERI Reisch.

Platycercus erythrotis Forbes * (nec Wagl.), Tr. N. Zeal. Inst. xxiv. p. 190 (1891) (Antipodes I.).

Cyanorhamphus hochstetteri Edd. Ibis, 1893, p. 134 (=*Platycercus erythrotis* Forbes); Rothsch. P. Z. S. 1893, p. 529; Salvad. Ibis, 1893, p. 467; Lorenz, Ann. Hofmus. Wien, xvii. p. 315 (1902) (♂ ♀ Typen, Antipodes I.).

Cyanorhamphus erythrotis Forbes (nec Wagl.), Ibis, 1893, pp. 280, 281 (critical); Rothsch. P. Z. S. 1893, pp. 529, 530 (part.); Sharpe, Hand-list, ii. p. 40, n. 8 (part.) (1900);

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* "Note on a Species of *Platycercus* (*p. erythrotis* Wagl.) from Antipodes Island" (Tr. N. Zeal. Inst. xxiv. p. 190).

Ogilvie-Grant, Ibis, 1905, p. 579 (Antipodes I.); Buller, Suppl. B. New Zeal. ii. p. 86 (1905).

Whether *C. hochstetteri* of Antipodes Island is different from *C. erythrotis* of Macquarie Island is still to be settled; Dr. Forbes, Dr. Sharpe, Messrs. Rothschild and Ogilvie-Grant agree that they are the same; I still venture to differ from them; and Dr. Lorenz-Liburnau is also inclined to admit that they are different. The question must be left *sub judice* till we have a good series of specimens from both localities for comparison. Unfortunately it is to be feared that the Parrot which was living in Macquarie Island is now extinct, at least Mr. Hamilton did not succeed in finding it (Tr. N. Zeal. Inst. xxvii. p. 573); it seems that it was still plentiful in 1880 (*cf.* Scott, Tr. N. Zeal. Inst. xiv. p. 561, or xv. p. 484; Hamilton, Tr. N. Zeal. Inst. xxvii. p. 573).

A point which makes me reluctant to believe in the specific identity of *C. hochstetteri* and *C. erythrotis* is their different habitats in two far-distant islands.

Cyanorhamphus cyanurus Salvad.; Forbes & Robinson, Bull. Liverp. Mus. i. p. 21 (1897) [Tahiti]; Buller, Suppl. B. New Zeal. ii. p. 87 (1905).

Cyanorhamphus novæ zealandiæ cyanurus Lorenz, Ann. Hofmus. Wien, xvii. p. 314 (1902) (Meyer Ins., Macaulay Ins.).

The Liverpool Museum possesses one example of this scarce species, but the locality assigned to it is no doubt wrong.

Dr. Lorenz-Liburnau does not find that specimens from Meyer and Macaulay Islands have the tail as conspicuously blue as I found it in the typical specimens from Raoul Island. Examples from different islands must be compared.

Cyanorhamphus auriceps (Kuhl); Lorenz, Ann. Hofmus. Wien, xvii. p. 314 (1901); Ogilvie-Grant, Ibis, 1905, p. 580 (Milford Sound, South I.); Buller, Suppl. B. New Zeal. ii. p. 88 (1905).

Cyanorhamphus intermedius Rchnw.; Salvad. Cat. B. xx. p. 589 (1901).

"Iris red, the bill blackish-grey, and the feet yellowish-brown." (*F. W. Hutton.*)

Sir W. L. Buller assured me that he had no doubt whatever that *C. intermedius* was, as suggested by me, nothing but the common form of *C. auriceps*, individuals of which differ a good deal in size.

CYANORHAMPHUS FORBESI Rothsch.

Platycercus auriceps Travers (nec Kuhl), Tr. N. Zeal. Inst. v. p. 216 (Chatham I.) (1873); Hutton, t. c. p. 223 (Chatham I.).

Cyanorhamphus forbesi Rothschild, P. Z. S. 1893, pp. 529, 530 (Chatham Isl.); Buller, Suppl. B. New Zeal. ii. p. 89 (1905).

"Similar to *C. auriceps* (Kuhl), but larger and with the crimson band in front of the yellow crown much narrower. The band of crimson in *P. auriceps* also reaches the eye, and in some specimens there is also a crimson patch behind the eye, while in my new species there is always a clear space between the crimson band and the eye." (*Rothschild.*)

Hab. Chatham Islands.

Mr. Rothschild has omitted to give the dimensions of this new form, to which I have already alluded (Cat. B. xx. p. 589).

CYANORHAMPHUS MALHERBEI Souancé; Rothsch. P. Z. S. 1893, p. 530 (South I.); Lorenz, Ann. Hofmus. Wien, xvii. p. 315 (1902) (Taranga Ins., N.Z.); Buller, Suppl. B. New Zeal. ii. p. 89 (1905).

This species was formerly known only from the South Island, but Herr Reischek has now found it also in the North Island.

NYMPHICUS Wagl.

NYMPHICUS UVAENSIS E. L. & E. L. C. Layard; Sclat. P. Z. S. 1897, p. 311 (two living examples).

NANODES V. & H.

Oberholser (Smithson. Collect. quart. vol. xlviii. p. 61) would give up this generic name in favour of *Euphema* Wagl., the former having been used by Schönherr in 1826, in the same year as Vigors and Horsfield.

MELOPSITTACUS Gould.

MELOPSITTACUS UNDULATUS (Shaw); Hartert, Nov. Zool. xii. p. 214 (Soda Spring, Kimberley) (1905).

Fam. VI. STRINGOPIDÆ (Cat. Birds Brit. Mus. xx. p. 599).

STRINGOPS G. R. Gr.

STRINGOPS ABROPTILUS G. R. Gr.; Salvad. Gen. Av., Psittaci, pt. iii. p. 2, pl. fig. 1 *a, b, c, d, e* (1905); Ogilvie-Grant, Ibis, 1905, p. 583; R. Henry, t. c. pp. 583–585; Buller, Suppl. B. New Zeal. ii. p. 89 (1905).

Strigops abroptilus Lorenz, Ann. Hofmus. Wien, xvii. p. 320 (1902).

Kakapo A. Newt. Dict. of B. p. 473 (1893).

Dr. Lorenz has some remarks about the Alpine examples collected by Herr Reischek.

STRINGOPS GREYI G. R. Gr.; Sharpe, Hand-list, ii. p. 41, n. 2 (1900); Salvad. Gen. Av., Psittaci, pt. iii. p. 2 (1905).

Dr. Sharpe says that "the Hon. Walter Rothschild (*in litt.*) considers that *S. greyi* is only an aberrantly coloured example of *S. habroptilus*. In the 'Catalogue of Birds,' xx. p. 601, I had already a remark to the same effect.

APPENDIX.

During the publication of my "Notes on the Parrots," the following species or subspecies have been described or discriminated:—

HYPOCHARMOSYNA PALLIDIOR (Rothsch. & Hartert).

Charmosynopsis placentis pallidior Rothsch. & Hartert, Nov. Zool. xii. p 253 (1905) (Bougainville, New Britain, New Ireland, and New Hanover).

"Without a blue patch on the uropygium [like *H. subplacens* Scl., but] colour of the upper surface paler green, auricular patch lighter blue; wings generally slightly shorter."

The authors of this species make the remark that "specimens from German New Guinea, Milne Bay, and Woodlark Island seem to be somewhat intermediate between *subplacens* and *pallidior*."

CHARMOSYNA WAHNESI Rothsch.

Charmosyna stellæ wahnesi Rothsch. Bull. B. O. C. xix. p. 27 (1906).

"Similar to *C. stellæ stellæ* from the Owen-Stanley Mountains, but differs in having a wide orange-yellow band across the breast, formed by the distal half or more of the feathers. . . ."

Hab. Sattelberg, German New Guinea.

PYRRHURA AMAZONUM Hellmayr.

Pyrrhura picta amazonum Hellm. Bull. B. O. C. xix. p. 8 (1906) (Lower Amazons).

Adult. "Differs from its nearest ally, *P. p. picta*, of Guiana, &c., in lacking the red on the bend of the wing, and in having the four middle tail-feathers but narrowly edged with green on their basal half. The blue frontal band is considerably narrower, reaching only as far back as the anterior margin of the eye, and the ear-coverts are bright brownish-buff (instead of dirty whitish- or greyish-buff).

"Bill about 20 mm.; wing 120–124½; tail 108–110.

"*Hab.* Obidos, Lower Amazons, Brazil."

PYRRHULOPSIS ATROGULARIS (Peale).

Pyrrhulopsis tabuensis, part., Salvad. Cat. B. xx. p. 494 (1891).

Pyrrhulopsis tabuensis var. *atrogularis* Buller, Suppl. B. New Zeal. ii. p. 82 (1905).

Sir W. Buller, speaking incidentally of *P. tabuensis*, mentions *P. atrogularis* Peale as a distinct variety, which he says is found on a small wooded island, called Gau, and *nowhere else*. If that is the case, *P. atrogularis* Peale would be entitled to be recognised as a distinct darker form of *P. tabuensis*.

List of Parrots additional to those described or recognised in the 'Catalogue of Birds.'

1. Nestor septentrionalis Lorenz. North I., New Zealand.
2. Eos talautensis Meyer & Wigl. Talaut Isl.
3. „ cyanonota (Vieill.). Buru.
4. „ obiensis Rothsch. Obi Major.
5. Lorius devittatus Hartert. Fergusson I., Woodlark I., New Britain, New Ireland, New Hanover, and S.E. New Guinea.
6. „ major Rothsch. & Hartert. Waigiou.
7. Trichoglossus djampeanus Hartert. Djampea I.
8. ? „ intermedius Rothsch. & Hartert. N. and N.W. New Guinea.
9. „ septentrionalis Robins. N. Australia.
10. „ (?) johnstoniæ Hartert. M. Apo, S. Mindanao.
11. Psitteuteles weberi Büttik. Flores.
12. ? Hypocharmosyna pallidior Rothsch. & Hartert. Bougainville, New Britain, New Ireland, and New Hanover.
13. „ meeki, Rothsch. & Hartert. Kulambangra, Solomon Is.
14. Charmosyna wahnesi Rothsch. Sattelberg, German New Guinea.
15. „ atrata Rothsch. S.E. New Guinea.
16. Oreopsittacus grandis Ogilvie-Grant. S.E. New Guinea.
17. Neopsittacus pullicauda Hartert. S.E. New Guinea.
18. Cyclopsittacus virago Hartert. D'Entrecasteaux Group.
19. „ inseparabilis Hartert. Sudest I., Louisiade Group.
20. ? „ coccineifrons Sharpe. S.E. New Guinea.
21. ? „ macilwraithi Rothsch. British New Guinea.
22. ? Microglossus alecto (Less.). Aru I. and W. Papuan Islands.
23. ? Cacatua occidentalis Hartert. Lombock, Flores, and Sumbawa.
24. ? Nasiterna orientalis De Vis. S.E. New Guinea.
25. „ viridifrons Rothsch. & Hartert. New Hanover.
26. „ tristrami Rothsch. & Hartert. Solomon Islands, Kulambangra, Rendova, New Georgia, and Gizo.
27. „ salvadorii Rothsch. & Hartert. North coast of New Guinea.
28. Anodorhynchus purpurascens Rothsch. Island of Guadeloupe. Extinct.
29. „ ? martinicus Rothsch. Island of Martinique. Extinct.
30. Ara guadeloupensis Clark. Guadeloupe, Dominica, (?) Martinique. Extinct.
31. „ erythrocephala Rothsch. Jamaica. Extinct.
32. „ gossei Rothsch. Jamaica. Extinct.
33. Conurus labati Rothsch. Island of Guadeloupe. Extinct.

34. Conurus rubritorques Sclat. Nicaragua.
35. ,, arubensis Hartert. Aruba I.
36. ,, xanthogenius Bp. Island of Bonaire.
37. Leptopsittaca branicki Berl. & Stolzm. Peru.
38. Pyrrhura chiripepé (Vieill.). Paraguay and Rio Grande do Sul.
39. ,, borellii Salvad. Rio Apa, Upper Paraguay.
40. ,, amazonum Hellm. Lower Amazons.
41. ,, griseipectus Salvad. Hab. unknown.
42. ,, hypoxantha Salvad. Urucum, Matto Grosso.
43. Psittacula xanthops Salv. N. Peru.
44. ,, insularis Ridgw. Tres Marias Islands.
45. ,, pallida Brewst. Sonora, N.W. Mexico.
46. ,, deliciosa Ridgw. Lower Amazons.
47. Chrysotis martinicana Clark. Martinique. Extinct.
48. ,, xanthopteryx Berl. Bolivia, Paraguay, and N. Argentina.
49. ,, rothschildi Hartert. Island of Bonaire.
50. ? ,, tres-mariæ (Nels.). Tres Marias Islands.
51. ,, saltuensis (Nels.). Sonora, N.W. Mexico.
52. ? ,, nana (Miller). Yucatan.
53. Deroptyus fuscifrons Hellm. Lower Amazons.
54. Pionopsittacus pulcher Berl. W. Colombia.
55. ? Pœocephalus rubricapillus Forbes & Robinson. (Cage variety ?)
56. ,, suahelicus Rchnw. Eastern Africa.
57. ,, angolensis Rchnw. Angola, Damara-Land.
58. ,,auranteiceps Neum. Sobat.
59. ,, matschiei Neum. E. Africa.
60. ,, erythreæ Neum. N.E. Africa.
61. ,, transvaalensis Neum. S.E. Africa.
62. ,, damarensis Neum. N.E. Africa.
63. ,, reichenowi Neum. N. Angola and probably the Congo district.
64. ,, saturatus Sharpe. North Ankole, Equat. Africa.
65. Geoffroyus cyanicarpus Hartert. Rossell Island.
66. ? ,, explorator Hartert. Goram and Monawoko Islands.
67. ,, tijndanæ Meyer. Sumba.
68. Prioniturus talautensis Hartert. Talaut Islands.
69. ,, mada Hartert. Buru.
70. ,, verticalis Sharpe. Sooloo Islands.
71. ,, montanus Whitehead. Northern Luzon.
72. ,, waterstradti Rothsch. South Mindanao
73. Tanygnathus salvadorii Grant. Montanani Islands.
74. ,, talautensis Meyer & Wigl. Talaut Islands.
75. ,, sumbensis Meyer. Sumba.

76. Tanygnathus viridipennis Hartert. Tukang-Besi Islands.
77. ,, sanghirensis Meyer & Wigl. Sanghir and Talaut Islands.
78. ? Palæornis intermedia Rothsch. India.
79. ,, salvadorii Oust. Szechuen and Thibet.
80. ,, major Richm. Pulo Babi and Pulo Lasia, off the west coast of Sumatra.
81. Pyrrhulopsis atrogularis (Peale). Gau Island (*Buller*).
82. Psittacella picta Rothsch. British New Guinea.
83. Psittinus abbotti Richm. Simular Island, off the west coast of Sumatra.
84. Agapornis nigrigenis W. L. Sclat. N.W. Rhodesia.
85. ,, lilianæ Shell. Upper Shiré, Nyasaland.
86. ,, zenkeri Rchnw. Cameroon.
87. Loriculus bournsi McGreg. Romblon, Libuyan, Tablas.
88. ,, worcesteri Steere. Samar and Leyte.
89. ,, ruber Meyer & Wigl. Peling and Banggai Islands.
90. ,, meeki Hartert. Fergusson Island and S.E. New Guinea.
91. Barnardius macgillivrayi (North). North Queensland.
92. ,, occidentalis (North). N.W. Australia.
93. Psephotus dissimilis Collett. Arnhem Land.
94. ? Cyanorhamphus magnirostris Forbes & Robinson. Tahiti ?
95. ,, forbesi Rothsch. Chatham Islands.

XIV.—*On some rare Palæarctic Birds' Eggs.*

By H. E. Dresser, F.Z.S., M.B.O.U., &c.

(Plate VI.)

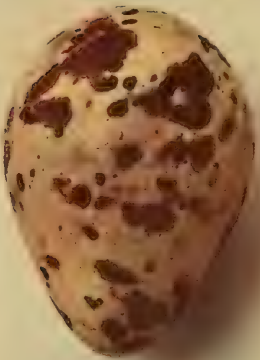
(1) Ibidorhynchus struthersi. (Plate VI. figs. 4, 5.)

Ibidorhynchus struthersi Dresser, Man. Palæarct. B. p. 805.

When last in England, Mr. S. L. Whymper spent some time in looking over my eggs and discussing oological matters, and I strongly advised him on his return to India to use every possible means to obtain the eggs of the Ibis-bill, as they were then quite unknown. In the spring of 1906 Mr. Whymper succeeded in finding them in the Himalayas, and at once sent me a clutch with the following particulars:—

"I found *Ibidorhynchus struthersi* breeding early in May at an elevation of between eight and nine thousand feet

Ibis. 1907. Pl. VI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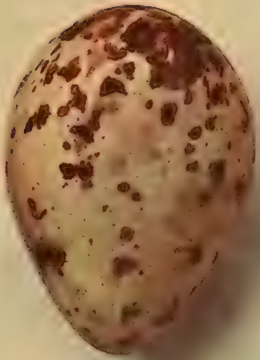
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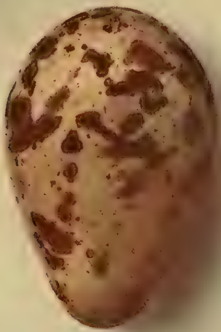
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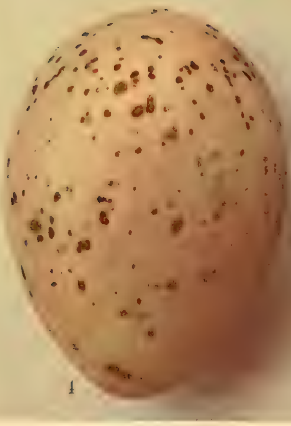
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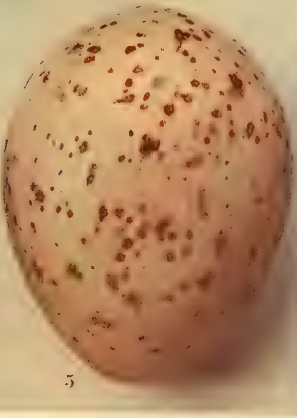
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1. 2. GALLINAGO SOLITARIA.
3. GALLINAGO RADDII.
4. 5. IBIDORHYNCHUS STRUTHERSI

in the sandy river-beds in Tehri-Garhal. Four nests were discovered, three of which contained four hard-set eggs and the fourth three eggs, which were also slightly incubated; but I have reason to believe that the last-named was a second clutch, and that the usual complement would be four. The nests were merely hollows in the sand among shingle and boulders on some island or shingle-bank and were all pretty near the water. They were rather neatly lined with little round stones, chiefly of a black colour, which made them somewhat conspicuous, in fact my eye was caught more by the nests than by the eggs. They were not difficult to find, as, possibly owing to the eggs being hard-set, the birds betrayed their whereabouts by their actions, while a little watching did the rest. In two cases, however, the old bird, although it came straight back to the nest, sat down about twelve feet away from the eggs and fairly puzzled me for a short time. One nest I discovered by retracing the tracks of a bird that rose and flew back in a suspicious way, but there was usually too much shingle to do this. Later in the year I saw several broods of young. The parents, in their behaviour with regard to the nest and its location, reminded me strongly of *Hoplopterus ventralis*. They acted very much like Lapwings, wheeling round quite close to my head with their curious twittering cry and enticing a dog away by settling and running in front of it till they were almost caught, but I did not at any time see them feign lameness or broken wings. These birds seem to sit on their eggs with the head held up and the neck not drawn in at all.

"The eggs are greenish grey in ground-colour and are spotted and marked, chiefly at the larger end, with reddish brown and pale purple. They do not vary much either in coloration or size; an average egg measured 1·94 by 1·47 inch."

The three eggs sent to me vary little, but I may remark that the greenish tinge in the ground-colour has quite faded, and had almost done so when they arrived. The measurements of these three eggs are 1·96 by 1·45, 2·01 by 1·46, and 2·05 by 1·49 inches.

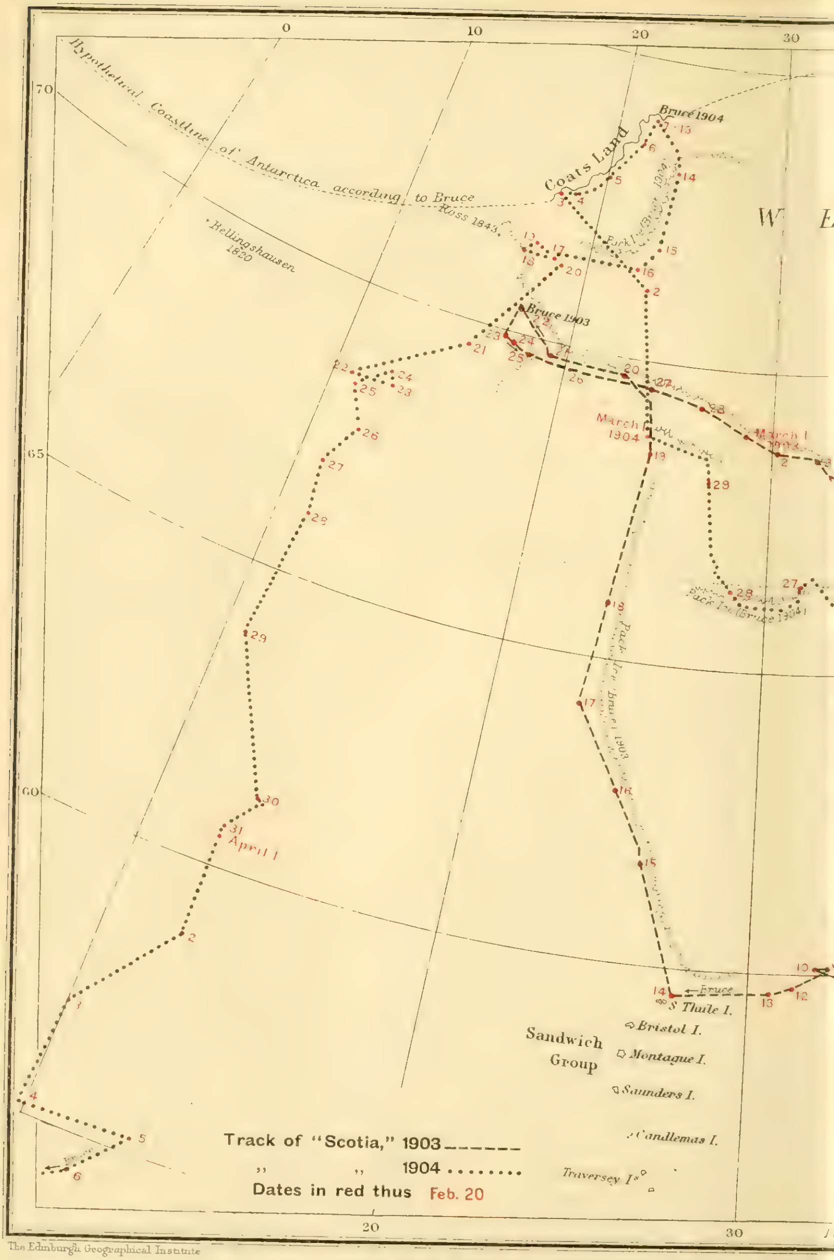
(2) Gallinago solitaria. (Plate VI. figs. 1, 2.)

Gallinago solitaria Dresser, Man. Palæarct. B. p. 763.

I am glad to be able to figure the eggs of this Snipe, for, like those of the preceding species, they have not hitherto been known, although Blanford has stated (Faun. Brit. Ind., Birds, iv. p. 291) that the Solitary Snipe "is undoubtedly found in the Himalayas, and at elevations of from 9000 to 15,000 feet in the breeding-season," but that "the nest and eggs have not been described." According to Taczanowski, this Snipe inhabits the mountains of Northern Tibet, Mongolia, and Siberia north to Kamtschatka, where it is said to be resident. When I was in St. Petersburg in 1904 Dr. Goebel shewed me a small collection of eggs received by him from near Minusinsk, on the Upper Yenesei, near the borders of Mongolia, which he assured me had been most carefully collected and identified. When I noticed that it contained the eggs of several species which I had not previously seen (amongst which were two of the present species), I arranged to take over the whole collection. Unfortunately the collector sent no particulars of the position of the nest or any description of it. The two eggs were taken on the 25th of June, and are larger than those of any Snipe in my collection, measuring 0·74 by 1·29 and 1·78 by 1·30 inch respectively.

(3) Gallinago raddii. (Plate VI. fig. 3.)

Mr. Buturlin has recently described a Snipe, closely allied to and indeed a geographical form of *Gallinago cœlestis*, but quite distinguishable from that species. In 1905, when collecting at the mouth of the Kolymá River in North-eastern Siberia, he found this Snipe breeding, and sent me four clutches of its eggs, each containing four specimens. In two of these clutches the eggs resemble those of *Gallinago cœlestis*, but are, as a rule, more boldly marked than in that species. The eggs in the other two clutches have the ground-colour more greenish grey in tone, and the example figured is one of these. In size they vary from 1·57 by 1·05 to 1·66 by 1·09 inch; thus they seem rather larger than eggs of *Gallinago cœlestis*.



Hypothetical Coastline of Antarctica according to Bruce
Coats Land
Bruce 1904
Ross 1843
Bellingshausen 1820
Bruce 1903
Pack Ice (Bruce 1904)
Pack Ice (Bruce 1903)
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Track of "Scotia," 1903
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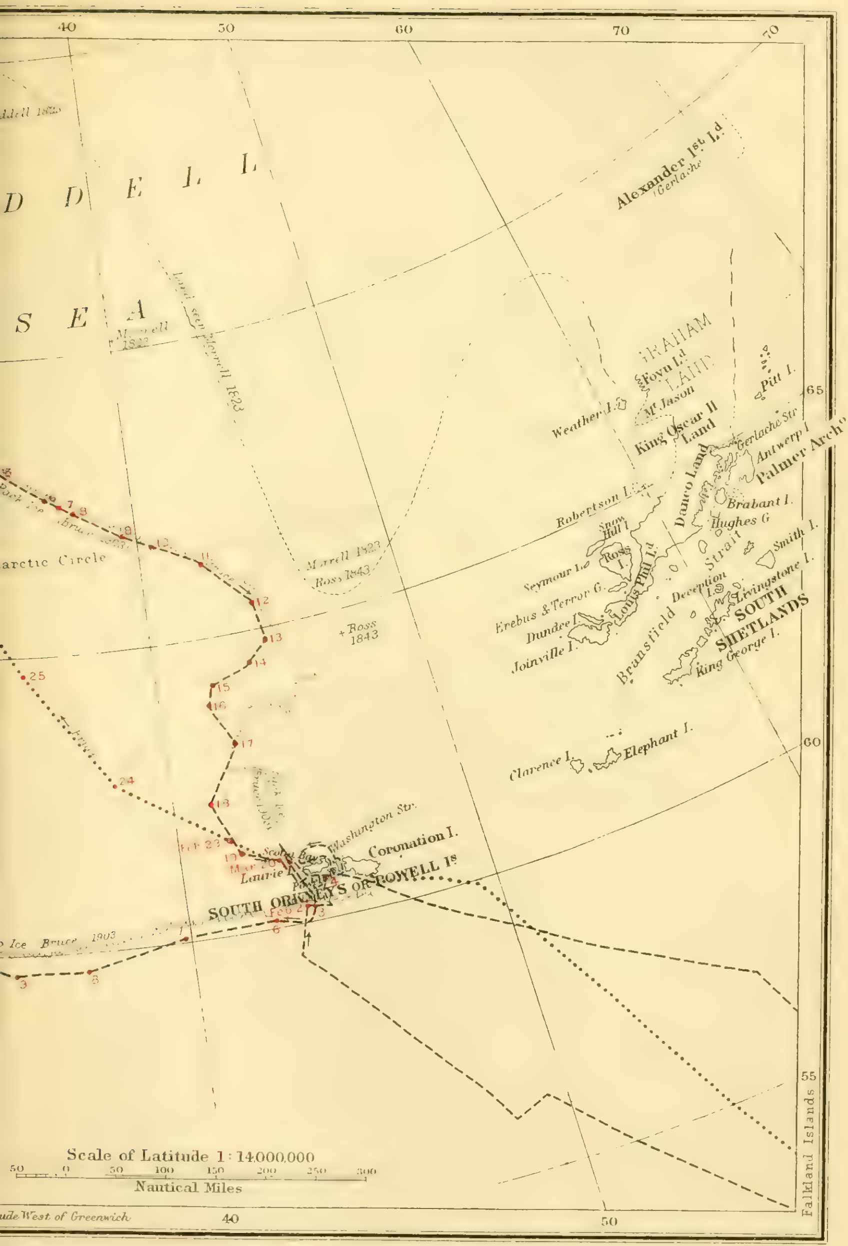
The Edinburgh Geographical Institute

TRACK OF THE "SCOTIA" IN THE WE

By WILLIAM S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GRAHAM LAND
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Mt Jason
Weather Ld
King Oscar II Land
Gerlache Str
Antwerp I.
Palmer Arch.
Pitt I.
Danco Land
Brabant I.
Hughes G
Robertson I.
Snow Hill I.
Seymour I.
Ross I.
Erebus & Terror G.
Louis Phil. Ld
Dundee I.
Joinville I.
Bransfield Strait
Deception I.
Smith I.
Livingstone I.
SOUTH SHETLANDS
King George I.
Clarence I.
Elephant I.
Morrell 1823
Ross 1843
Ross 1843
Morrell 1823
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Antarctic Circle
Washington Str.
Coronation I.
Scotia Bay
Laurie I.
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Falkland Islands
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Nautical Miles
Longitude West of Greenwich
40
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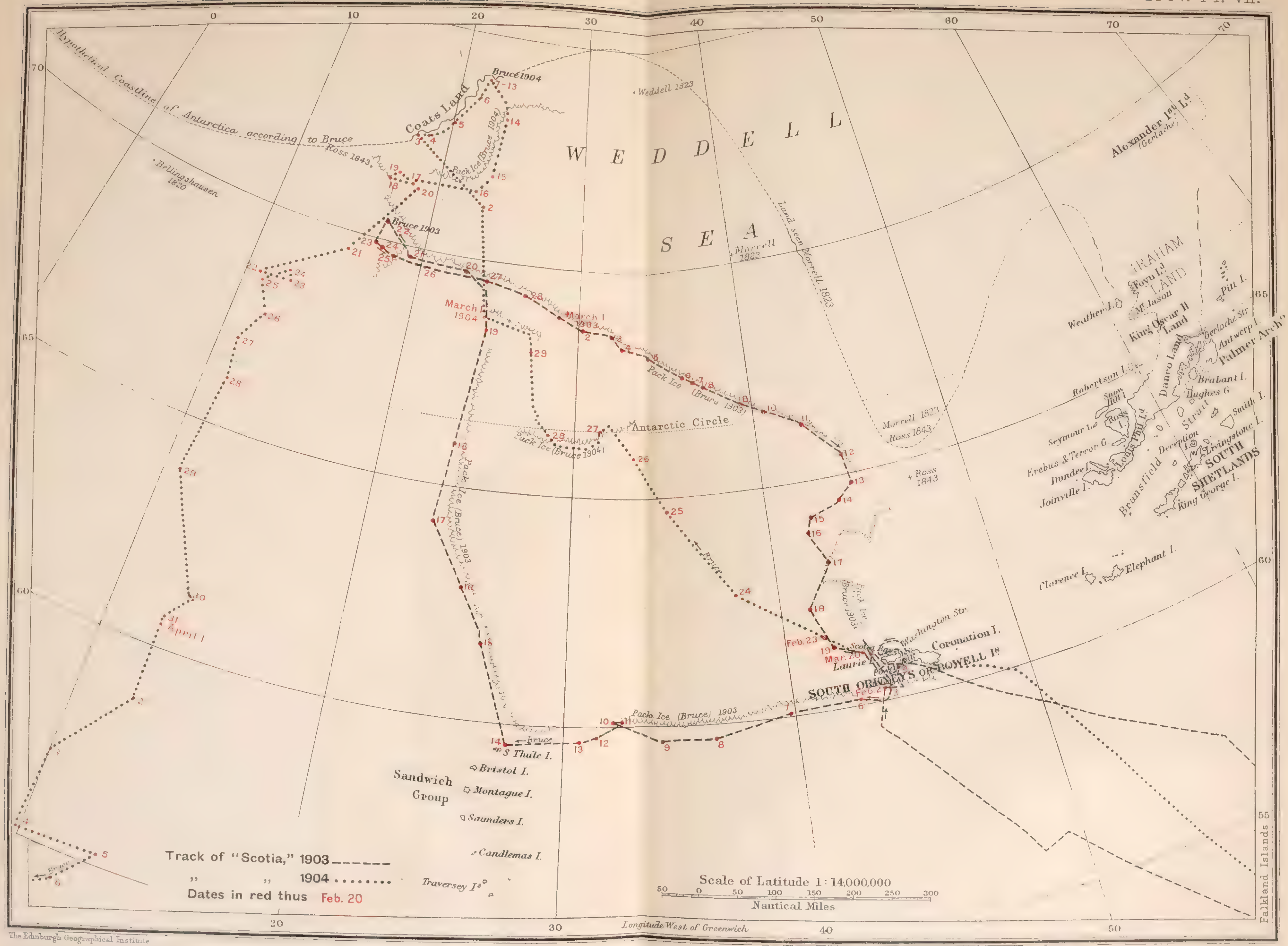
DELL AND ADJACENT SEAS, 1903-1904

RUCE, F.R.S.E.

J. G. Bartholomew.


Hypothetical Coastline of Antarctica according to Bruce
Coats Land
Bruce 1904
Ross 1843
Bellingshausen 1820
Weddell 1823
Pack Ice (Bruce 1904)
Bruce 1903
W E D D E L L
S E A
Morrell 1823
Land seen Morrell 1823
Alexander 1st Ld (Gerlache)
GRAHAM LAND
Foyn Ld
Mt. Jason
Weather I.
King Oscar II Land
Danco Land
Pitt I.
Gerlache Str.
Antwerp I.
Palmer Arch.
Brabant I.
Hughes G.
Robertson I.
Snow Hill I.
Seymour I.
Ross I.
Erebus & Terror G.
Dundee I.
Joinville I.
Louis Phil. Ld
Bransfield Strait
Deception I.
Smith I.
Livingstone I.
SOUTH SHETLANDS
King George I.
Morrell 1823
Ross 1843
Ross 1843
March 1 1903
Pack Ice (Bruce 1903)
March 1 1904
Antarctic Circle
Pack Ice (Bruce 1904)
Pack Ice (Bruce) 1903
Bruce
Pack Ice (Bruce 1903)
Clarence I.
Elephant I.
Washington Str.
Coronation I.
Scotia Bay
Laurie I.
SOUTH ORKNEYS OR POWELL Is
Feb. 23
Mar. 20
Feb. 2
Pack Ice (Bruce) 1903
S. Thule I.
Bristol I.
Sandwich Group
Montague I.
Saunders I.
Candlemas I.
Traversey Is
April 1
Falkland Islands
Track of "Scotia," 1903 - - - - -
" " 1904 · · · · · ·
Dates in red thus Feb. 20
Scale of Latitude 1: 14,000,000
50 0 50 100 150 200 250 300
Nautical Miles
Longitude West of Greenwich
0
10
20
30
40
50
60
70
70
65
60
55

The Edinburgh Geographical Institute

J.G.Bartholomew.

TRACK OF THE "SCOTIA" IN THE WEDDELL AND ADJACENT SEAS, 1903-1904

By WILLIAM S. BRUCE, F.R.S.E.

XV.—*Ornithological Results of the Scottish National Antarctic Expedition.*—III. *On the Birds of the Weddell and adjacent Seas, Antarctic Ocean**. By Wm. Eagle Clarke, F.R.S.E., F.L.S., The Royal Scottish Museum.

(Plate VII.)

This instalment of the ornithological results of the voyage of the 'Scotia' deals with the bird-life observed in the Antarctic Ocean southwards of the 60th parallel of south latitude, and between the meridians of 12° and 45° of west longitude: in other words, the Weddell Sea and the waters fringing it on the north (see map, Pl. VII.). Previous to the voyages of the 'Scotia,' the Weddell Sea had only been visited by Capt. Weddell †, during his marvellously successful cruise in 1823; by Morrell later in the same year; by Sir J. C. Ross, who traversed its waters in 1843; and, lastly, by Otto Nordenskjöld, who penetrated to its western portion in 1902.

Mr. Bruce made two voyages into the Weddell Sea: the first in the late southern summer of 1903, and a second and more extended cruise in the same season of 1904. On both these occasions a high southern latitude was attained, and on the latter the Antarctic Continent within this area was discovered and named "Coats Land," after Mr. James Coats and Major Andrew Coats, in recognition of their public-spirited liberality towards the expedition. During these voyages birds received much attention, and specimens were collected whenever opportunity afforded, chiefly while the 'Scotia' was engaged in taking soundings, or while trawling operations were in progress for the capture of deep-sea organisms. As no landing was effected on *terra firma*, the birds were observed or obtained either amid the ice-fields or on the open sea. The collection thus formed comprises seventy-four specimens, and is one of great value and interest, for it is not only the first ever made in the region, but adds greatly to our knowledge of the geographical distribution of bird-life in the Antarctic seas.

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* For Part I. "The Birds of Gough Island," see 'The Ibis,' 1905, pp. 247–268, pl. vi.; Part II. "The Birds of the South Orkney Islands," *op. cit.* 1906, pp. 145–187, pls. iii.–xiii.

† See List of Works consulted on p. 330.

The first of the above-mentioned voyages commenced on the 4th of February, 1903, on which date the 'Scotia' sailed from Saddle Island, one of the South Orkneys. It was the intention of the explorers to follow a south-easterly course, as Weddell had done in 1823, but the pack-ice, in places from fifteen to twenty feet thick, compelled them to proceed in an easterly direction, hugging, as it were, the 60th degree of south latitude. On February 14th, when some distance off Thule Island, the southernmost of the South Sandwich Group, the edge of the pack was fortunately found to trend towards the much-desired south.

During the run from the South Orkneys towards the Sandwich Islands the following birds were either obtained or came under notice:—Banks's Whale-Bird (*Prion banksi*), Wilson's Petrel (*Oceanites oceanicus*), Cape Petrel (*Daption capensis*), Giant Petrel (*Ossifraga gigantea*), Silver Petrel (*Priocella glacialoides*), Snowy Petrel (*Pagodroma nivea*), Hutton's Sooty Albatros (*Phœbetria cornicoides*), Ringed Penguin (*Pygoscelis antarctica*), Sheathbill (*Chionis alba*), and several "Mollymauks."

From noon on the 15th of February until the 18th, when the Antarctic Circle was crossed, the 'Scotia' had a fine run southwards in a sea clear of pack-ice. On the 19th, however, the edge of the pack was again encountered, and an E.S.E. course was steered until the 22nd, when, in 70° 25′ S. lat. and 17° 12′ W. long., or a little short of Ross's furthest south in this region, the ship became firmly beset. Later in the day, however, the 'Scotia' managed to free herself, but the temperature having fallen to 13° F., it was resolved to retreat to the South Orkneys in search of winter-quarters.

The birds observed between the Sandwich Group and the Antarctic Circle were Wilson's Petrels, "Blue Petrels"

(? *Prion* or *Halobæna*[*]), Giant Petrels, Hutton's Sooty Albatroses, Cape Petrels, Snowy Petrels, Silver Petrels, Antarctic Skuas (*Megalestris antarctica*), Antarctic Petrels (*Thalassœca antarctica*), and Terns (*Sterna* sp.).

Between the Antarctic Circle and the furthest south (lat. 70° 25′ S., long. 17° 12′ W.), the same species came under notice, with the addition of Emperor and Adélie Penguins (*Aptenodytes forsteri* and *Pygoscelis adeliæ*).

On the return voyage a north-easterly course was steered, the Antarctic Circle was recrossed on March the 11th, and the first southern voyage of the 'Scotia' was completed on the 21st, on which day she reached the South Orkneys.

The only bird worthy of note obtained during the final stages of this cruise was a McCormick's Skua (*Megalestris maccormicki*).

Having spent the winter of 1903 at Laurie Island, the 'Scotia' proceeded to the Falklands and Buenos Aires to refit, and returned to the South Orkneys on February 14th, 1904. On the 22nd, the Expedition bade adieu to the Orkneys and the 'Scotia' commenced her second and most important voyage to the Weddell Sea. In contrast to the preceding season, the sea was almost free from pack-ice and a south-easterly course was possible. At the beginning of March the old track of the previous year was crossed, and a few days afterwards the 'Scotia' broke her southern record of 1903, and that of Ross in 1843. Skirting, more or less, the open pack for 300 miles, the ship met with no obstacle to her progress southward, whereas in 1903 all had been impenetrable ice. On reaching 72° 18′ S., 17° 59′ W., however, a lofty ice-barrier effectually barred further progress towards the south, and here Coats Land was discovered. This barrier was traced for a distance of 150 miles to the south-west, when, on the 7th of March, the ship was caught in a north-easterly blizzard and became locked in heavy pack-ice. On the gale abating two days later, it was found that the 'Scotia' had been driven into a bight in the ice-barrier off Coats Land in 74° 1′ S., 22° 0′ W. No open water was in sight, and with the temperature down to zero the pack soon froze up. For several days there was no change, and the lateness of the season, and the possibility of not being liberated, made it imperative that preparations should be made for wintering. On the 13th, however, under the influence of a south-west wind, the pack began to break up and the ship was once more afloat. Off this newly-discovered land Emperor Penguins were abundant, and twenty were captured; while Adélie Penguins, Giant Petrels, McCormick's Skuas, Arctic Terns (*Sterna macrura*), and Snowy and Silver Petrels were swarming all around. The birds previously observed during the voyage, in addition to the species named, were Cape Petrels, Wilson's Petrels, Blue Petrels (*Halobæna cærulea*), Hutton's Sooty Albatroses, and Banks's Whale-Birds, the last-mentioned being only observed north of the Antarctic Circle.

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[*] Both *Prion banksi* and *Halobæna cærulea* appear under the name of "Blue Petrels" in the "Zoological Log," and when specimens were not obtained it is impossible to say which species is intended.

The Antarctic summer was now fast drawing to a close, and the 'Scotia' having narrowly escaped the miseries of wintering in the pack, turned her prow towards the north on the 17th of March, her immediate goal being the remote Gough Island in the middle waters of the South Atlantic Ocean. In the run northwards to the Antarctic Circle, the birds logged were Emperor and Adélie Penguins, Antarctic, Silver, Snowy, Cape, Blue, and Wilson's Petrels, Hutton's Sooty Albatroses, Arctic Terns, and a new Petrel to the fauna of the South Polar Ocean, namely *Œstrelata brevirostris*. The species noted between the Circle and 60° S. lat., which was crossed in about 12° W. long., and between March 27th and April 2nd, included most of the species named, the absentees being the two Penguins, the Snowy and Antarctic Petrels, and the Arctic Tern. On the other hand, an additional Petrel, from the description probably *Majaqueus æquinoctialis*, was encountered.

It may be interesting here to notice that the Expedition added no less than four birds, namely *Sterna macrura*, *Phœbetria cornicoides, Halobæna cærulea*, and *Œstrelata brevirostris*, to the short list of nine species previously known, according to Mr. Howard Saunders in the 'Antarctic Manual,' to have occurred south of the Antarctic Circle.

A specially important ornithological feature of these voyages of the 'Scotia' was the presence in the Polar Sea of a number of species of Petrels far beyond the southern limits of their breeding-areas. This seems to indicate that at the close of the southern summer numbers of Hutton's Sooty Albatroses (*P. cornicoides*), Cape Petrels (*D. capensis*), Giant Petrels (*O. gigantea*), Antarctic Petrels (*T. antarctica*), Silver Petrels (*P. glacialoides*), Blue Petrels (*H. cærulea*), and *Œstrelata brevirostris* cross the Antarctic Circle and sojourn among the polar ice ere they retreat northwards to pass the winter in more genial oceanic resorts. It is possible, however, that some of these visitors to the far south are non-breeding birds, and, if so, they may have spent the entire summer there. The Tubinares are, as is well-known, great wanderers, but these very remarkable southern incursions are, perhaps, to be explained by the extraordinary abundance of food to be found in the waters of the far south in the summer and autumn, which allures some of the birds further and further towards the pole, until the great ice-barrier, which almost girdles the Antarctic Continent, arrests their further progress, since at its base the food-supply entirely ceases. This, too, explains why our familiar Arctic Tern (*Sterna macrura*) passes the southern summer (our northern winter) amid these ever-icy seas.

The species observed between 60° S. lat. and Gough Island (40° 19′ S., 9° 44′ W.) from April 1st to 21st may be usefully enumerated here with a view to connecting ornithologically the third instalment of the results with the first. These were **Ossifraga gigantea, Daption capensis, Priocella glacialoides,* **Oceanites oceanicus,* **Phœbetria cornicoides,* **P. fuliginosa* (55° 8′ S.), *Diomedea melanophrys, Œstrelata brevirostris,* **Œ. mollis* (48° S.), **Cymodroma grallaria* (55° 8′ S.), **Priofinus cinereus* (49° 25′ S.),

**Majaqueus æquinoctialis* (53° 58′ S.), **Prion vittatus*, **Pelecanoides* sp. (52° 33′ S.), *Spheniscus magellanicus*, **Catarrhactes chrysocome* (48° 53′ S.), **Megalestris antarctica*, and *Sterna vittata*. The birds marked with an asterisk were also observed off Gough Island and as far to the south of that isle as the latitude indicated in brackets, except in the case of species already noted as being seen south of 60°.

Full particulars of the distribution of all the species collected or observed by the expedition south of 60° 0′ during the voyages that I have thus briefly described will be found in the systematic portion of this contribution, which is chiefly based upon the information afforded by the Zoological Log of the 'Scotia,' kept by Mr. Wilton, though I am also indebted to Mr. Bruce for extracts from his private diary relating to this portion of the expedition under his leadership.

Mr. Kinnear has again earned my acknowledgments for the aid which he has rendered me in classifying the numerous records.

I shall have occasion to refer to the following works :—

WEDDELL.—A Voyage towards the South Pole, performed in the Years 1822–1824. By JAMES WEDDELL, Master in the Royal Navy. (1825.)

ROSS.—A Voyage of Discovery and Research in the Southern and Antarctic Regions during the Years 1839–43. By Capt. Sir JAMES CLARK ROSS, R.N. Vol. II. (1847.)

SAUNDERS (1).—Catalogue of Birds in the British Museum. Vol. xxv. Gaviæ. By HOWARD SAUNDERS. (1896.)

SALVIN.—Catalogue of Birds in the British Museum. Vol. xxv. Tubinares. By OSBERT SALVIN. (1896.)

CHUN.—Aus den Tiefen des Weltmeers. Von CARL CHUN. (1900.)

RACOVITZA.—La vie des Animaux et des Plantes dans l'Antarctique. Par EMILE G. RACOVITZA. (1900.)

SAUNDERS (2).—Antarctic Manual for the use of the Expedition of 1901. By HOWARD SAUNDERS. (1901.)

SHARPE.—Report on the Collections of Natural History made in the Antarctic Regions during the Voyage of the 'Southern Cross.' Aves. By R. BOWDLER SHARPE, LL.D. (1902.)

ANDERSON.—Das Höhere Tierleben im Antarktischen Gebiete. Von K. A. ANDERSON. Wiss. Ergebn. d. Schwedischen Südpolar-Exp. 1901–1903. Bd. v. Lfg. 2. (1905.)

NORDENSKJÖLD.—Antarctica, or Two Years amongst the Ice of the South Pole. By Dr. N. OTTO NORDENSKJÖLD and Dr. JOH. GUNNAR ANDERSON. (1905.)

LÖNNBERG.—Die Vögel der Schwedischen Südpolar-Expedition. Von EINAR LÖNNBERG. Wiss. Ergebn. d. Schwed. Südpolar-Exp. Bd. v. Lfg. 5. (1905.)

VANHOFFEN.—Bericht über die bei der deutschen Südpolarexpedition beobachteten Vögel. Von Prof. Dr. E. VANHOFFEN. Journ. für Orn. 1905, pp. 500–515.

BROWN, MOSSMAN, and PIRIE.—The Voyage of the 'Scotia.' By Three of the Staff (1906). An excellent and graphic account of the work of the Scottish National Antarctic Expedition.

APTENODYTES FORSTERI G. R. Gray.

Aptenodytes forsteri Cat. Birds, xxvi. p. 626.

The occurrence of this bird as a visitor to the South Orkneys was considered probable in 1903 ('Ibis,' 1906, p. 166), and the fact has since been fully confirmed by the Argentine naturalists, who, Mr. Mossman informs me, captured two specimens on Laurie Island in March 1905. This establishes a record for the northern range, namely 60° 44′ S., of this species.

On the first Antarctic voyage in the early southern autumn of 1903, this species was not observed until latitude 69° 46′ S. (20° 58′ W.) was reached. Here a male, weighing 64 lbs., was shot on February 21st, whose stomach contained cuttle-beaks, fishes, and three small gneiss pebbles. On the following day an individual was captured on the ice in 70° 25′ S., and was brought on board alive. This bird soon became reconciled to its strange surroundings, and with remarkable equanimity paced up and down the deck of the 'Scotia,' every now and then giving utterance to a musical cry. On the return passage to the South Orkneys for winter-quarters, another male was obtained in 67° 10′ S. (39° W.), but none were seen further north.

On the second voyage, in 1904, this species was not encountered till 72° 18′ S. (17° 59′ W.) was attained on March 3rd, on which day three examples were seen and secured. In 73° 30′ S. (21° 28′ W.) Emperor Penguins were in abundance on the water, but only one was observed on the ice, which was captured. In 74° 1′ S. (22° W.), while the 'Scotia' was for several days fast in the pack off Coats Land, until March 14th, an extraordinary number of these Penguins were seen on the ice around the ship, and many were captured with a view to providing food for the expedition should it be compelled to winter in the pack. While the ship was thus incarcerated, Piper Kerr played on his pipes to one of the captive Penguins which was tethered on the ice, but it is said that neither rousing marches, lively reels, nor melancholy laments seemed to have any effect on this lethargic and phlegmatic bird: it was absolutely indifferent to them all!

Some of the individuals captured weighed close on 80 lbs., and it was all that a man could do to lead one of them up to the ship. With their beaks they bit fairly hard, while with their long, flipper-like wings they dealt severe blows.

None were seen after the 'Scotia' escaped from the ice and proceeded northwards.

PYGOSCELIS ANTARCTICA (Forster).

Pygoscelis antarctica Cat. Birds, xxvi. p. 634.

Ringed Penguins were abundant in the South Orcadian waters and were seen at sea during the easterly run towards the South Sandwich Group in February 1903. Afterwards, when the 'Scotia' was proceeding southwards, these birds were met with at intervals until latitude 69° 39′ S. (22° 58′ W.) was reached on February 20th. On the return passage to the Orkneys they were met with in 67° 39′ S.

For the second voyage there were but few records, but it is said that several individuals were seen by one of the sailors on March 18th (1904) when the 'Scotia' was in latitude 71° 22′ S. (16° 34′ W.). The only other observation is for April 1st, on which date some were noticed on the water in 60° 33′ S. (12° W.)—the last the 'Scotia' naturalists were to see of a bird to our knowledge of which they have added so much.

PYGOSCELIS ADELIÆ (Hombr. et Jacq.).

Pygoscelis adeliæ Cat. Birds, xxvi. p. 632.

The Adélie Penguin—another native of the Antarctic Continent—was not observed during the first voyage into the Weddell Sea until the latitude of 69° 46′ S. (20° 58′ W.) was attained on February 21st, 1903, the day on which the expedition made the acquaintance of the Emperor Penguin, which shares with this species the distinction of being the most southerly representatives of its order. On the following day, when the 'Scotia' reached her furthest south (71° 21′) for the season, the birds were very abundant; and on the return passage to the Orkneys were seen almost daily in considerable numbers. On one occasion some twenty to thirty were observed seated on an iceberg from forty to fifty feet high, to obtain a footing on which others were seen jumping out of the water on to the berg's precipitous slippery sides, and holding on where Mr. Bruce believes no other bird or mammal could. They took advantage of the wash of the sea, but often had to try again and again ere they succeeded in landing on the lowest ledges of the berg.

During the 1904 voyage this bird was not logged until March 6th, when a few examples were noted in 73° 30′ S. (21° 38′ W.). A few more were observed on the northward passage, but not beyond 61° 25′ S. (12° 47′ W.).

Three adults captured on February 23rd, 1903, were still in moult, having only partially assumed their new coats of blue-black tipped with steely blue. The temperature of these specimens was found to be 102°–103° F.

OCEANITES OCEANICUS (Kuhl).

Oceanites oceanicus Cat. Birds, xxv. p. 353.

After the nesting-season this little Petrel becomes a great wanderer on the face of the ocean. As such it was almost daily to be seen in numbers, both at sea and among the ice, throughout the voyages of the 'Scotia'—being observed as far south as 72° 22′, while northwards it was present in abundance off Gough Island (40° 19′ S.).

It was one of those birds which followed in the wake of the ship, probably on the look-out for scraps cast overboard from the galley. On February 7th, 1903, in lat. 60° 35′ S. and long. 39° 41′ W., a great number were observed around a dead whale, picking up morsels of fat that fell from the bills of a host of Giant and Cape Petrels, which were regaling themselves to repletion on the blubber of the defunct leviathan. On one occasion "a flock" was observed resting on the water in 61° 22′ (42° W.).

The 'Belgica' obtained it in the pack in 70° S. (87° W.); the 'Southern Cross' found it breeding on Victoria Land; and Dr. Wilson saw it off the Great Ice Barrier in 78° S., some seventy miles from the nearest open water (Voy. of the 'Discovery,' ii. pp. 482–3).

THALASSŒCA ANTARCTICA (Gm.).

Thalassœca antarctica Cat. Birds, xxv. p. 392.

The Antarctic Petrel was first encountered by the Expedition on February 17th, 1903, in latitude 64° 18′ S. (23° 09′ W.). Afterwards it was much in evidence in the vicinity of and amidst the great polar ice-fields. During the first voyage this bird was seen almost daily, sometimes in flocks, its latitudinal range varying from 62° to 70° S., and its longitudinal from 16° to 44° W.

It was equally frequent during the second voyage, in 1904, and often followed the ship all day. When off Coats Land in 74° 1′ S. no less than twenty were shot on March 14th, while the 'Scotia' was locked in the pack. Just previously to this, namely on March 5th, when in 72° 31′ S., thousands of this species were seen in company with McCormick's Skuas, Giant and Snowy Petrels, and Arctic Terns. On the northward voyage it was not observed beyond 68° 26′ S. (10° 11′ W.).

As already recorded ('Ibis,' 1906, p. 169), a few came under notice at Laurie Island in the summer of 1903–4, and it was thought not unlikely that the bird was nesting there. A number were also seen near Saddle Island, another of the South Orkney Group, on March 22nd, 1903, in about 60° S., the most northerly point at which this species was observed during the voyages of the expedition. A number of specimens were obtained in the month of March during the Antarctic voyages of 1903 and 1904, and these vary in their plumage. Some are more or less faded (drab) in colour and abraded in feather, and are, no doubt, unmoulted birds: others are evidently freshly moulted adults or young of the year; in these the head, back, scapulars, lesser wing-coverts, quills, and tip of the tail are slaty black, and the under parts purer white. Specimens in moult are intermediate between these two forms, and make clear the relationships of these phases in plumage as regards adult birds. Some of these moulting birds lack rectrices, their tails being represented by the long under tail-coverts only. The feet in life have the tarsus and outer toe greyish, the other toes and the webs paler and washed with yellow.

PRIOCELLA GLACIALOIDES (Smith).

Priocella glacialoides Cat. Birds, xxv. p. 393.

The Silver or Silver-grey Petrel was observed during the voyages to and from the Weddell Sea, between the latitudes 44° 30′ and 71° 22′ S., and the meridians of 9° 43′ and 42° 30′ W. The extreme southerly range here indicated has only been exceeded, I believe, in the case of the observations made by Dr. Wilson during the National Expedition under Capt. Scott, when the bird was seen in the Ross Sea (Voy. of the 'Discovery,' ii. p. 481).

This Petrel was first met with on the 9th of February, when the 'Scotia' was skirting the pack-ice in 58° 57′ S. and 33° 34′ W., or about midway between the South Orkney and South Sandwich Groups; but it was not observed beyond 63° 54′ S. on the 1903 voyage. On the second voyage it was noted as high as 71° 22′ S., on March 18th, 1904, when one was seen in company with several other species of Petrel and Arctic Terns.

It does not appear to be an abundant species in the Weddell Sea; but it was observed in numbers during the northward voyage, when latitude 60° S. was reached, and was last seen when the 'Scotia' was nearing Gough Island.

As stated in 'The Ibis' for 1906 (p. 170), it was occasionally seen in the summer of 1903 about the cliffs at Laurie Island, where it was considered probable that a few were nesting. I mentioned (*l. c.*) that its breeding-haunts remained unknown. Since then, however, I have learned that the Swedish Expedition under Nordenskjöld found it nesting at Cape Roquemaurel, on the west coast of Louis Philippe Land (Anderson, *t. c.* p. 43).

A coloured drawing made by the artist to the expedition shews the maxilla and mandible tipped with black, the middle portion of the bill pale flesh-coloured, and the base and nares pale cobalt-blue. The feet are pale flesh-coloured, the webs washed with yellow, and the claws black. The iris is dark brown, and the pupil blue-black.

PAGODROMA NIVEA (Gm.).

Pagodroma nivea Cat. Birds, xxv. p. 419.

The Snowy Petrel being a native of the Antarctic Continent, it is not surprising to find that it was one of the most abundant and most frequently observed species which came under the notice of the Expedition in the Weddell Sea. During both the southern voyages of the 'Scotia,' there was hardly a day on which this beautiful bird was not met with—often in great numbers. It was most abundant in the neighbourhood of the pack, and became less numerous as soon as open water clear of ice was entered.

The extremes of latitude between which this bird was met with during the voyages of the 'Scotia' were from 59° 44′ to 74° 1′ S. (off Coats Land, the *Ultima Thule* of the Expedition). Longitudinally it occurred from 12° 49′ to 43° 40′ W. On the voyage from Coats Land northwards to Gough Island it was not observed beyond 68° 32′ S. (12° 49′ W.).

The Snowy Petrel was sometimes seen in flocks around the ship, and often followed it all the day long. It was seen to capture fish at or near the surface of the water.

Œstrelata brevirostris (Lesson).

Œstrelata brevirostris Cat. Birds, xxv. p. 409.

This species is new to the avifauna of the Antarctic Ocean, where it was discovered by the Scottish Expedition on March 20th, 1904, in 69° 33′ S. and 15° 19′ W., during the northward voyage from Coats Land towards Gough Island. On that day, while the 'Scotia' was engaged in trawling for the capture of various forms of marine life, Dr. Pirie left the ship in a boat for the purpose of obtaining specimens of birds, a quantity of which, including Terns and various species of Petrels, were in the vicinity. While thus employed he came across numbers of a Petrel that he had not seen before, and succeeded in shooting a male, which on examination I found to belong to this species. Afterwards this 'New Petrel,' as it was logged, was observed on five different days down to March 25th, when it was last seen in 65° 58′ S. and 11° 24′ W.

The habitat of this interesting addition to the fauna of the South Polar Seas has hitherto been supposed to be confined, according to Salvin (*op. cit.* p. 410), to the South Atlantic and South Indian Oceans, and he mentions specimens as being in the British Museum Collection from Kerguelen [where it breeds] and Tristan d'Acunha.

Vanhoffen (*t. c.* pp. 506 & 508) records it as seen so far south as 59° during the voyage of the 'Gauss' from Kerguelen towards Kaiser Wilhelm II. Land; and on the return voyage northwards from that part of the Antarctic Continent it was again met with 200 nautical miles south of Heard Island, or in about 57° S.

The feet of the specimen obtained by Dr. Pirie are, according to a coloured drawing made at the time of its capture, purplish grey and the claws black; while the iris is dark brown and the pupil blue-black.

Ossifraga gigantea (Gm.).

Ossifraga gigantea Cat. Birds, xxv. p. 422.

The Giant Petrel was seen everywhere and almost daily during the Antarctic voyages of the 'Scotia,' even in the highest latitudes reached during each year's cruise, namely 70° and 74° S.; and yet its breeding-grounds are all, so far as we know them, to be found north of the Antarctic Circle.

Perhaps some of these Petrels which frequent the far south in late summer and autumn may be either non-breeding or immature birds which have spent the summer there; while others may proceed south at the close of the nesting-season, as may also young birds. These are points which at present do not admit of satisfactory solution.

Off Coats Land, in 74° 1′ S. and 22° W., from the 9th to the 13th of March, 1904, when the 'Scotia' was fast in the grip of the pack, a number of these birds were seen, as were also many of McCormick's Skuas, Antarctic and Snowy Petrels, and Arctic Terns. White examples are only alluded to in the Zoological Log during these voyages as being seen on four occasions, all north of 61° S.

As regards the food of this bird as a marine species, a great host of individuals, including white examples, were feeding on the carcass of a dead whale in 60° 03′ S. (39° 44′ W.) on February 7th, 1903, and the stomach of one shot contained crustaceans.

DAPTION CAPENSIS (Linn.).

Daption capensis Cat. Birds, xxv. p. 428.

The "Cape Pigeon" was one of the most abundant species observed by the expedition during its two Antarctic voyages. It was seen almost everywhere, both at sea and amid the ice, as far south as 71° 50′, though it was only found in small numbers in the high latitude mentioned.

The presence of this (with other Petrels) in great numbers in the Weddell Sea, far to the south of its breeding-haunts, in the late summer and in autumn, has already been alluded to (p. 329), and a possible explanation of its remarkable incursions amid the south polar ice, ere it moves northward to reach its accustomed oceanic winter-quarters, has been offered.

All the specimens obtained in the Antarctic Ocean during these voyages in the autumns of 1903 and 1904 have the dark portions of their plumage of a fresh slate-black tint, instead of the faded brown presented by the examples obtained at the South Orkneys during the breeding-season. This is, with little doubt, attributable to the fact that the birds were either adults recently moulted, or young in their first plumage, or both.

Whenever the 'Scotia' stopped for the purpose of taking soundings, these Petrels settled on the water on the look-out for scraps of food, and so tame were they that specimens were often captured by simply scooping them out of the water by means of a large landing-net. Birds thus taken were sometimes liberated on the ship's deck, where they shewed their entire inability to escape, the 'Scotia' not being long enough to afford them a sufficiently extended run to enable them to rise on the wing: it was the same with the Giant Petrels.

When in pursuit of food at or near the surface, the Cape Petrels were observed to plunge downwards into the water after the manner of Terns.

On February 7th, 1903, in 60° 35′ S., 39° 44′ W., a vast number, along with Giant and Wilson's Petrels, were observed feeding on the floating carcass of a dead whale.

Ross (*l. c.* ii. p. 191) saw this bird off Victoria Land, on January 14th, 1841, in 71° 50′ S., or in precisely the same latitude in which Mr. Bruce made his southernmost observation.

During the voyage of the 'Southern Cross' it does not appear to have been noted beyond 65° 3′ S. (Sharpe, *t. c.* p. 157); but Vanhoffen (*t. c.* p. 507) observed it right down to the winter-quarters of the 'Gauss,' namely to the Antarctic Continent (Kaiser Wilhelm II. Land) in 66° 2′ S., 89° 38′ E. The Swedish Expedition (Anderson, *l. c.* p. 46) also observed it near their southern limit, namely in the pack-ice east of Graham's Land in 64° 30′ S.

HALOBÆNA CÆRULEA (Gmelin).

Halobæna cærulea Cat. Birds, xxv. p. 431.

Under the collective name of "Blue Petrels," both this species and at least one of the Whale-Birds (*Prion*) were confounded by the Scottish explorers—a pardonable error also made long years ago during Cook's voyage in the Antarctic seas, and, no doubt, often since repeated. Fortunately, however, a number of specimens of these "Blue Petrels" were secured, and afford authentic information regarding both this species and *Prion banksi* in the seas visited by the Expedition.

The data accompanying the skins of *H. cærulea*, the Blue Petrel proper, enable me to extend the distribution of this species far to the south of all previous records of a reliable nature. Salvin (*t. c.* p. 431), the monographer of the Petrels, gives its range as being between 40° and 60° S., or practically where Cook left it in the latter half of the 18th century; and it has no place in the bird section of the 'Antarctic Manual.' From the 'Scotia,' specimens were captured as far south in the Weddell Sea as 69° 33′ S., and others, believed to be of this species, were observed as high as 71° 28′ S. It probably occurs even beyond the limits indicated, for I think there can be little doubt that this was the bird which Weddell met with on February 18th, 1823, a little further to the west, in 73° S., where he tells us (*op. cit.* pp. 35–6) "the sea was literally covered with birds of the Blue Petrel kind." Ross (*t. c.* p. 359) also mentions a "Blue Petrel" as seen in the Weddell Sea in 67° 06′ S. and 8° 35′ W. Banks's Whale-Bird (*Prion banksi*), the other "Blue Petrel" of the Expedition, was not obtained beyond 66° S., and I am not aware of any reliable record of its occurrence within the Antarctic Circle.

"Blue Petrels" appear very frequently in the Log of the 'Scotia' during the two southern voyages, but *H. cærulea* was not obtained north of 64° 29′ S., and the ten specimens in the collection were secured between that latitude and 69° 33′ S., and longitudes 12° 49′ and 35° 29′ W. All but two were obtained south of 68°, and in the month of March (1903 and 1904). On February 25th, 1904, two specimens of this species, and one of *Prion banksi*, were captured in 64° 29′ S. and 35° 29′ W.

Weddell (*op. cit.* p. 144) mentions the Blue Petrel as occurring at the South Shetlands, but later explorers do not mention *Halobæna cærulea* for that group or for the Antarctic Regions proper. It would seem that this species is local in its far southern range, and is a specially characteristic bird of the Weddell Sea. It was not seen at the South Orkneys during the summer, nor was it encountered at sea in the vicinity of that Archipelago.

In some of the specimens in the collection the white feathers of the forehead shew their dark bases, and thus the front presents a mottled appearance. The bill in freshly killed examples was cobalt-blue, except the nares and culmen, which were black. The feet were cobalt-blue, the webs pale flesh-coloured, the claws black.

PRION BANKSI Gould.

Prion banksi Cat. Birds, xxv. p. 434.

Banks's Whale-Bird (and perhaps others of its genus *), as has already been stated, when treating of *Halobæna cærulea*, was logged during the Antarctic voyages of the 'Scotia' as a "Blue Petrel." Here, however, the specimens collected with such praiseworthy diligence again come to our aid, and enable us not only to distinguish between the two species on important occasions, but also to extend the southern range of this bird from 60° S. (*fide* Salvin, *t. c.* p. 434, and the 'Antarctic Manual') to 66° S.†

The first specimens, a male and female, were procured on February 9th, 1903, when the 'Scotia' was off the edge of the pack-ice in 59° 42′ S. and 34° 13′ W., or about midway between the South Orkneys and Thule I., the most southerly of the Sandwich Archipelago. These were the only examples obtained during the Antarctic voyage of 1903. On the second voyage four (two males and two females) were captured in the Weddell Sea, or its confines, on February 25th and 26th, 1904, in 64° 29′ (35° 29′ W.) and 65° 59′ S. (33° 06′ W.).

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* *Prion desolatus* appears ('Antarctic Manual,' p. 231) to reach the edge of the Antarctic Circle, having been obtained by the 'Challenger' at the ice-barrier. It breeds at Kerguelen. This bird was not obtained by the Scottish Expedition.

† In the Liverpool Museum, however, there is a specimen which believed to have been obtained by Dr. J. Hooker off Victoria Land in 70° S. This example is recorded, along with *Ægialitis falklandica*, *Nettion flavirostre*, and *Podicipes calipareus*, as new to Antarctica in the 'Bulletin' of the Museum (ii. p. 48). None of these species have come under the notice of later observers within the Antarctic Circle.

This species does not appear to have come under the notice of other recent Antarctic explorers, but a species of *Prion* is recorded by Vanhoffen (*t. c.*) as having occurred off Kaiser Wilhelm II. Land, or just without the Antarctic Circle, on March 18th, 1903, and one was also noticed between that part of the Antarctic Continent and Kerguelen I., where *P. desolatus* is known to breed.

The bill and feet of the specimens secured by the Scottish Expedition are described as being bluish grey, and the iris as brown.

PHŒBETRIA CORNICOIDES Hutton.

Phœbetria fuliginosa Cat. Birds, xxv. p. 453 ; Chun, t. c. pp. 167, 220; Voy. of 'Scotia,' pp. 181, 232.

It is a matter for surprise that two such genuinely distinct species as *P. cornicoides* and *P. fuliginosa* should have collectively passed for a considerable number of years under the name of the Sooty Albatros. The 'Scotia' collection of birds has already been the means of calling attention to the claims of Capt. Hutton's so-called variety, described in 1867, to full specific rank. Now there remains the important but at present almost impossible task of unravelling the tangled skein involved in defining the geographical distribution of the two species. Here the 'Scotia' collections again lend a helping hand, for they enable me to say that all the birds obtained and seen in the far south belonged to Hutton's species, and that it was only when the waters of the South Atlantic were approached that Gmelin's *fuliginosa* appeared upon the scene.

Specimens of both birds were collected, and the species under consideration was the only one obtained in the Antarctic Ocean, where it was observed as far south as 69° 46′ S. lat.

During the first Antarctic voyage, in 1903, this bird was noticed on eight occasions between February 14th and March 21st in latitudes varying from 59° 33′ to 69° 46′ S., and in longitudes from 20° 58′ to 27° 32′ W.; and on the second voyage, in 1904, it was logged for south of 60° on ten days between February 23rd and April 1st, in latitudes ranging from 60° 30′ to 67° S., and longitudes between 10° 42′ and 41° 55′ W. On February 25th, when in 64° 29′ S. and 35° 29′ W., six individuals were sailing around the 'Scotia' at the same time. North of 60° it was encountered as far as Gough Island (40° 19′ S.), as already related ('Ibis,' 1905, pp. 267–268).

Previously to the researches of the 'Scotia' Expedition, this Albatros had not been recorded within the Antarctic Circle, though Ross (*t. c.* p. 359) observed a "Sooty Albatros" in the Weddell Sea in 67° 06′ S. and 8° 35′ W. on March 1st, 1843, which most probably was of this species.

No specimen of *P. fuliginosa* was obtained or observed by the Expedition beyond 58° S., though it is certain that this Albatros does attain to a higher degree of southern latitude. "Sooty Albatroses" were frequently logged during the voyages of the 'Scotia' between the Falklands and the South Orkneys, and are believed to have been *P. cornicoides*, but no specimens were captured.

Having made some incursions into the literature of Antarctic ornithology in the preparation of these papers, perhaps it may be well to allude to these researches so far as they concern *P. cornicoides*.

Captain Hutton told me, in 1905, that this species is the common form in New Zealand, and that it breeds at the Auckland and Antipodes Islands at the end of October; and Lönnberg in his 'Contributions to the Fauna of South Georgia,' i. p. 71 (1906), mentions it as breeding on cliffs at that island.

Chun (*t. c.* p. 167) informs us that during the voyage of the 'Valdivia,' "*Diomedea fuliginosa*, die aschgrauen Albatrosse mit schwarzlichen Kopfe," was met with about midway between the Cape of Good Hope and Bouvet Island on November 20th, 1898, and (p. 220) that the Smoke-grey ("rauchgraue") Albatros was seen almost daily from Bouvet I. onwards. There is no mistake as to the bird meant, for reference is made to an excellent figure of *P. cornicoides.*

Bernachi ('To the South Polar Regions,' pp. 316, 317) says that during the month of January, 1900, an Albatros, which he describes as "generally sooty, paler on the shoulders and under surface," was occasionally seen in the pack-ice.

Vanhoffen (*t. c.*) has a number of references to *Phœbetria* during the voyage of the 'Gauss,' as seen between Kerguelen and the Antarctic Circle, but he evidently did not realize or recognise that there were two species of the genus.

Anderson (*op. cit.*) makes no allusion to *Phœbetria* under "Sturmvögel" in his records of the "Höhere Tierleben" of the Swedish Expedition; but Lönnberg (*t. c.* p. 6), in his account of the birds seen during the Relief Expedition, mentions that several examples of *P. cornicoides* were seen between Cape Horn and South Georgia, and that it was last seen in 61° 42′ S. and 57° 35′ W.

No Sooty Albatros was obtained by the 'Southern Cross' Expedition, though, as I have said, Bernachi saw this bird; nor does Dr. Racovitza (*t. c.*) mention either species in his account of the animal life observed during the voyage of the 'Belgica.'

DIOMEDEA EXULANS Linn.

Diomedea exulans Cat. Birds, xxv. p. 441.

There is only one record for this species, namely, of a bird seen on March 20th, 1903, when the 'Scotia' was in 61° S. and 43° 20′ W., southward of the Orkneys.

? "THALASSOGERON CHLORORHYNCHUS."

The only "Mollymauk" seen, and attributed to this species, was logged on February 6th, 1903, when the ship was proceeding eastwards from the South Orkneys and was a good way off the edge of the pack-ice. This was in 60° 10′ S. and 42° 35′ W.

Sterna macrura Naum.

Sterna macrura Cat. Birds, xxv. p. 62.

Sterna hirundinacea Bruce & Wilton, Scot. Geogr. Mag. 1904, p. 128; Pirie & Brown, op. cit. 1905, p. 26.

In the 'Antarctic Manual' (p. 233) Mr. Saunders tells us that there is ample evidence that Terns are found in large numbers in the South Polar regions, and even within the Antarctic Circle, and that Webster found Terns at the South Shetlands, whence the Dundee whalers brought back specimens which were referable to the well-known South-American species *Sterna hirundinacea*. Mr. Saunders then expresses the opinion that it may be reasonably assumed that all the Terns found southwards of America are of this form, and this is quite correct so far as the breeding species are concerned. No Tern is, however, known to breed within the Antarctic Circle, nor have, I believe, any specimens hitherto been *obtained* to the south of 66°.

When the 'Scotia' sailed from the South Orkneys she left *Sterna hirundinacea* behind her. Other Terns were met with, often in considerable numbers, and specimens were fortunately obtained in widely scattered portions of the Weddell Sea. These, strange to say, I found to belong to the most northern representative of their genus, namely, to *Sterna macrura*, the Arctic Tern! Thus this familiar bird to British ornithologists would seem to have the most extensive latitudinal range to be found among vertebrate animals, since it is now known to occur from 82° N. to 74° 1′ S. It was doubtless the species seen by McCormick in 76° 52′ S. in Ross's Sea, off Victoria Land, in the forties of the last century, and also the bird noted by him in the ice between 65° and 66° S. and 158° W.

During the Antarctic voyages of the 'Scotia' Terns frequently came under notice, and specimens of *Sterna macrura* were obtained between 64° 29′ and 72° 18′ S. latitude and from 12° 49′ to 35° 29′ W. longitude. They were often observed in considerable numbers, and are logged for March 5th, 1904, as being seen in thousands in 72° 31′ S.; while from the 9th to the 13th of the same month, when off Coats Land, in 74° 1′ S., 22° 0′ W., many were seen along with McCormick's Skuas, Giant, Antarctic, and Snowy Petrels, when the 'Scotia' was locked in the pack.

It seems very remarkable that the far-off ice-fields of the South Polar Ocean should be visited during the northern winter season by this boreal species. That it is only a winter visitor does not admit of doubt, for the bird certainly does not breed there; nor is any other Tern, so far as we know, a native of the Antarctic Continent. During the southern summer (the northern winter) there is an extraordinary abundance of marine life, especially of surface-swimming crustaceans, and so this elegant bird is tempted to seek retreats which can otherwise only be regarded, even in summer, as inhospitable in the extreme.

The finding of this Tern in the seas off the South Polar Continent must be regarded as one of the most important ornithological discoveries made by the Expedition, for, as has already been stated, no Terns appear to have been previously captured within seas girdled by the Antarctic Circle.

The 'Scotia' collections include some interesting specimens. An adult female obtained on March 23rd, 1904, in 68° 32′ S. and 12° 49′ W., has already assumed full breeding-plumage, and shews no signs of moulting. Another (a male) is assuming its summer hood, leaving the head a mixture of black-and-white feathers; this specimen still retains the dusky upper wing-coverts of youth. In addition to gaining the black head for the first time, it exhibits further evidence of moulting, inasmuch as neither the primaries nor the rectrices are quite fully grown, the first primary being still shorter than the second by about half an inch. I am inclined to think that we have here a bird about twenty-one months old.

The series also includes two immature examples in the plumage known as the *S. portlandica* stage. These have the forehead and crown nearly white, the rest of the head blackish, the lesser wing-coverts conspicuously dark, and the bill and feet black. They are in deep moult so far as their primary-quills and tail-feathers are concerned, but apparently not otherwise. Some of their primaries are only three inches long.

The 'Gauss' obtained a Tern off Kaiser Wilhelm II. Land, in 66° S., 89° 38′ E., on February 18th, 1903, which Reichenow (Orn. Monatsber. xii. p. 47) described as a new subspecies of the Arctic Tern under the name of *Sterna macrura antistropha*. This is said to be "very like *S. macrura*, but with the bill darker, not cinnabar or poppy-red, but carmine at the base and blackish towards the tip; lower edge of mandible longer, 21–22 mm., in *macrura* only 16–19 mm. Feet not yellowish red to cinnabar-red, but dusky carmine-red, webs blackish. Tarsus somewhat longer, 15–17 mm." If described from skins, that fact might account for the subtle differences in colour, or if such differences really exist they might be due to the season (the winter for *S. macrura*). The 'Scotia' specimens do not exhibit the peculiarities attributed to this subspecific form, except that one of them agrees with it so far as the dimensions of the mandible and tarsus are concerned.

[GULLS.

No Gulls were observed during the Antarctic voyages of the 'Scotia,' except *Larus dominicanus* in the vicinity of the South Orkneys. In the 'Antarctic Manual' (p. 232) it is stated that this Gull was obtained in 64° 18′ S., and that a specimen of *Larus scoresbyi*, also in the British Museum, was obtained in the vicinity of the South Shetlands in 64° 55′ S. Mr. Bruce, who was naturalist on the 'Balæna,' from which vessel the birds in question were obtained, tells me that these examples were undoubtedly captured at the Falkland Islands and that they were skinned by him.]

MEGALESTRIS MACCORMICKI Saunders.

Megalestris maccormicki Cat. Birds, xxv. p. 321.

Megalestris antarctica Pirie & Brown, Scot. Geogr. Mag. 1905, p. 26.

This species was not distinguished from the Antarctic Skua (*M. antarctica*) during the active work of the Expedition, and hence it is only possible to discriminate with certainty between the two species by reference to the specimens obtained. No doubt, however, all the Skuas seen south of the Antarctic Circle belonged to the species named after Dr. McCormick.

There are only two skins of this Skua in the collection brought home by the 'Scotia.' The first of these, an adult, was procured on March 10th, 1903, in 66° 40′ S. and 40° 35′ W., or the lowest latitude in which this species has, I believe, been obtained, except the example alluded to by me ('Ibis,' 1906, p. 182) as captured at the South Orkneys by the Argentine observers in 1904.

The second example, an adult male, was shot alongside the ship on March 9th, 1904, in 74° S. and 22° W. The 'Scotia' was then fast in the pack and about two miles off the Great Ice Barrier at Coats Land. Many of these birds were then present, as were also numerous Giant and Snowy Petrels and Arctic Terns (*Sterna macrura*).

The Antarctic Skua (*M. antarctica*) did not occur with certainty beyond 62° 49′ S. (38° 12′ W.).

Chionis alba (Gmelin).

Chionis alba Cat. Birds, xxiv. p. 710.

This bird, the only one found in the regions treated of that may be regarded as a terrestrial or, to speak more correctly, a semiterrestrial species, was several times observed at sea during the first voyage of the 'Scotia.' It does not, however, penetrate into the Weddell Sea, but was met with when the ship was running eastwards from the South Orkneys towards the Sandwich Group in the late summer of 1903.

During this voyage the White Sheathbill was observed on three occasions. First, on February 6th, in lat. 60° 10′ S. (42° 35′ W.), when the 'Scotia' was a good way off the edge of the ice. Here this species, along with Banks's Whale-Bird, Cape, Wilson's, and Snowy Petrels, followed in the wake of the ship during the day. Again, on February 8th, in 59° 41′ S. (36° 40′ W.), or about midway between the Orkney and Sandwich Groups and 300 miles from land, Sheathbills were observed along with the birds already mentioned. Finally, it was noted at sea to the southward of the Orkneys on March 21st in about 61° S.—its furthest south.

In the Liverpool Museum (Bull. Liverpool Mus. ii. p. 48) there is a specimen of this bird which is said to have been shot on the Antarctic Continent in 78° S. by Dr. Gunn, who, strange to say, was afterwards proved never to have been there! (see 'Ibis,' 1895, p. 165, and 'Antarctic Manual,' p. 234, footnote).

XVI.—*Notices of recent Ornithological Publications.*

[Continued from p. 214.]

26. *Angelini on a new Synallaxine Bird.*

[*Aphrastura fulva*, nuova specie di Passeraceo appartenente ai Dendrocolaptidi Sinallaxini. Prof. Giovanni Angelini. Boll. Soc. Zool. Ital. (2) vi. p. 227 (1905).]

Aphrastura fulva is based upon two specimens obtained at Ancud, in Chile, in 1884, now in the Zoological Museum of the University of Rome. It is apparently nearly allied to *A. spinicauda*. *Aphrastura* is a new name for *Oxyurus*, proposed by Oberholser (*cf.* Sharpe, Hand-l. iii. p. 51).

27. *'The Avicultural Magazine.'*

[Avicultural Magazine. The Journal of the Avicultural Society. New Series. Vol. v. Nos. 2–4. London: December 1906 to February 1907.]

In these three numbers of the 'Avicultural Magazine' we once more find items of considerable interest. Several species are recorded as having bred in captivity for the first time in Britain, among them the Pine-Grosbeak, the Jackal-Buzzard, and the White-eared Conure. They are reported by Mr. W. H. St. Quintin, Mr. J. H. Gurney, and Mr. E. J. Brook respectively. Mrs. Johnstone has also successfully reared a young specimen of Fraser's Touraco; and it is needless to say that in all these cases we find valuable details given in respect to plumage, habits, and so forth.

Mr. H. D. Astley's paper on Lear's Macaw, and Mr. D. Seth-Smith's on the plumed Doves are each accompanied by a coloured plate, in the latter case of *Lophophaps leucogaster*; while that of Mr. Meade-Waldo on the Cruise of the 'Valhalla' has an illustration of Jackass-Penguins and the young Sacred Ibis. Several other articles, with the usual notes, reviews, and correspondence, give evidence of the lively interest taken by many persons in the Magazine and its contents.

28. *Bonhote on Coloration in Mammals and Birds.*

[The Coloration in Mammals and Birds. By J. Lewis Bonhote. Knowledge, vol. iii. 1905 6, pp. 293–294, 316–317, 343, 372–373, 402–404.]

In 'The Ibis' for 1905 (p. 271) we noticed a paper by Mr. Bonhote on the Coloration of Animals, and we are now able to grasp his conceptions more completely from the fuller elaboration of his theories which lies before us. He contends, as before, that coloration is due to physiological causes, and that in a high state of vigour we find a corresponding increase in pigmentation. Vigour itself is affected by two causes: (1) climate, including temperature and food-supply; (2) the rise and fall of sexual activity—the latter being the only factor practically worth consideration in tropical districts. Lack of colour would thus imply impaired vigour, and, in the case of the Polar Regions, only those animals which are able to retain full vigour would assume darker tints. The conditions of the Tropical Regions, on the other hand, lend themselves to a high state of vigour, and colours would be most pronounced there and less liable to change. Centres of bleaching, or "pœcilomeres," are generally to be found, but are, for the most part, only noticeable during the growth of a new coat.

29. *Cooke on American* Anatidæ.

[Distribution and Migration of North-American Ducks, Geese, and Swans. By Wells W. Cooke. U.S. Dept. of Agricult., Biol. Survey, Bull. 26. Washington, 1906. 90 pp.]

The title of this pamphlet tells its own story, and we need only say that, antecedently to the accounts of the several species, Mr. Cooke discusses the family under the heads of Protection, Decrease, Range, Migration, and Distribution within various areas.

30. *Dresser on Palæarctic Birds' Eggs.*

[Eggs of the Birds of Europe, including all the Species inhabiting the Western Palæarctic Area. By H. E. Dresser. Parts V., VI. London: November 1906. Price 10*s.* 6*d.* net per Part.]

These two parts deal with the families Falconidæ (conclusion), Turdidæ, and Cinclidæ, as well as the genera *Scotocerca*, *Argya*, and *Accentor*. The Booted Eagle is restored to the genus *Aquila*, and for Bonelli's Eagle the title *Eutolmaëtus* is adopted in place of *Nisaëtus* of Hodgson. Mr. Dresser refuses to acknowledge the supposed new Redwing from Iceland (*Turdus coburni*), while on p. 188 we have his ideas of the different forms included under *Cinclus*. Difficult questions of nomenclature are dealt with in the genus *Saxicola*, and careful descriptions are given throughout of the breeding-habits, nests, and eggs of the various forms. The author omits, however, to mention the characteristic use of the wood-rush (*Luzula maxima*) in the lining of the Golden Eagle's nest—at least in Scotland,—and credits the Mistletoe-Thrush with a somewhat too exclusive love of "gardens, parks, and groves," while the statement that the Whinchat breeds in Shetland cannot be at present accepted. The eggs figured are those of *Aquila heliaca*, *A. adalberti*, *A. rapax*, *A. chrysaëtus*, *A. pomarina*, *A. maculata*, *A. pennata*, *A. nipalensis*, *Eutolmaëtus fasciatus*, *Circaëtus gallicus*, *Falco cherrug*, *F. feldeggi*, various species of the genera *Turdus*, *Monticola*, *Cinclus*, *Saxicola*, *Pratincola*, *Scotocerca*, *Argya*, and *Accentor*. The figures of the larger eggs stand out well and clearly, but some might with advantage have been taken from finer specimens; those of the smaller eggs are at times too dull; yet, as a whole, they are excellent.

31. *Hall's 'Key to the Birds of Australia.'*

[A Key to the Birds of Australia, with their Geographical Distribution. By Robert Hall, F.L.S., C.M.Z.S. Second Edition. Melbourne and London (R. H. Porter), 1906.]

Mr. Hall's second edition of his 'Key to the Birds of Australia' is, in fact, a reprint of his first edition (see 'The Ibis,' 1900, p. 385), with additional information and pictures intercalated between the pages of the original. The pictures are reduced copies of the plates in Gould's 'Birds of Australia.' The mode of introducing the new matter seems to us to be rather awkward, as the new pages are left unnumbered, so that it is difficult to refer to them. Nevertheless the author has produced a useful handbook containing a great deal of information in a small compass. A list of Australian "species and subspecies recently described as new" is appended to the old text, and helps to bring the work "up to date." It gives us the titles of 49 species, which, added to those mentioned in the first edition, would bring the total number of Australian species now recognised up to about 816. From these, however, should be deducted the so-called "Spotted Emeu (*Dromæus irroratus*)," which has been recently shown to be merely a slight variety of *D. novæ-hollandiæ* and not even a local form.

32. *Hartert on Birds from North-west Australia.*

[Additional Notes on Birds from N.W. Australia. By Ernst Hartert, Ph.D. Nov. Zool. xiii. p. 754.]

These notes are supplementary to Dr. Hartert's paper in 'Novitates Zoologicæ,' vol. xii. p. 194, on the birds collected by Mr. Tunney in N.W. Australia and Arnhem Land (see 'Ibis,' 1905, p. 276). They relate to *Ametrornis woodwardi*, *Colluricincla woodwardi*, and *Gymnorhina tibicen longirostris*. The two former are figured.

33. *Hartert on some Philippine Birds.*

[Notes on Birds from the Philippine Islands. By Ernst Hartert, Ph.D. Nov. Zool. xiii. p. 755.]

These notes relate to specimens in the Tring Museum collected by Doherty, Goodfellow, and Waterstradt. *Loriculus philippensis dohertyi* is a new subspecies from Basilan. *Rhipidura nigro-cinnamomea* and the very remarkable Starling *Goodfellowia miranda* from Mt. Apo are well figured by Keulemans.

34. *Harvie-Brown on the Tay Area.*

[A Vertebrate Fauna of Scotland. Tay Basin and Strathmore. By J. A. Harvie-Brown. Edinburgh: David Douglas, 1906. Sm. 4to. Pp. i–lxxxvi, 1–377; 29 illustr., 5 maps.]

Each successive volume of the 'Vertebrate Fauna of Scotland' series brings us nearer to its conclusion, and the present contribution, which treats of the Tay Basin and Strathmore, leads us as far to the southward as the boundaries of "Clyde" and "Forth." Various as are the aspects and manifold as are the interests of the more northerly districts which formed the subjects of previous volumes, the "Tay" area, which includes a great part of the counties of Perth, Forfar, Kincardine, and Fife, yields to none of them in the diversity of its attractions. The massive southern spurs of the Grampian Range, the Breadalbane Mountains, and the Clova Hills not only provide lovely scenery and splendid botanizing ground to many a traveller and naturalist, but also afford admirable breeding-sites for certain of our rarer birds, while these heights with their innumerable glens, the valley of the Tay itself, the famous moors, and the flatter parts of the country to the southward, ensure the presence of an exceptionally varied fauna.

Mr. Harvie-Brown begins with a brief revision of the work already accomplished in the series, while a sketch of the history of the Perthshire Society of Natural History is given by Mr. H. Coates, its President for 1905. Following upon these comes the general description of the coast-line, islands, watersheds, valleys, moors, and lochs, with dissertations on the faunal position of the area and its climate. Special sections on Mammals, Birds, Reptiles, and Amphibians bulk largely, as usual, in the text, but Fishes find no place in this volume. Two appendices treat respectively of the

Wild Birds Preservation Act, Scotland, and of additional notes. The 21 full-page illustrations include portraits of well-known Perthshire naturalists and other local celebrities, views of scenery, and so forth; we should almost have preferred a greater proportion of the latter. Five maps shew the occurrences of the Little Auk, the dispersal of the Starling and Tufted Duck, the Tents Muir and Barry districts, and the entire "Tay" area.

No one could be better fitted to write this volume than Mr. Harvie-Brown, who, living almost within the district, has worked at its fauna since 1860; his wide information has enabled him to treat with his customary skill and knowledge the fauna of each separate district, while many willing helpers have materially lightened his task. We must, however, take him to task with regard to the following slips of the pen:—

(1) The whole of the information under the heading of "Ortolan Bunting" belongs to "Cirl Bunting" and has been misplaced; while "Henderson of Dundee" therein should be "Henderson of Dunrossness, Shetland." His record therefore refers to the Shetland Fauna.

(2) The square brackets have been accidentally omitted from the articles on the "Ruddy Sheldrake" and "Red-legged Partridge."

(3) The Little Stint is entirely omitted from the list of species (p. 319), though it is not uncommon at times on certain parts of the coast.

On the other hand, the breeding of the Grey Lag Goose in a wild state within the Tay area and the supposed occurrence of the Marsh-Warbler are wisely omitted for the present.

35. '*Hastings and East Sussex Naturalist.*'

[The Hastings and East Sussex Naturalist, being the Journal of the Hastings and St. Leonards Natural History Society. Vol. i. No. 1. Hastings: Burfield & Pennells. November 1906. Price 1*s.*]

We congratulate the above-named Society on the issue of the first part of their Journal, which we are sure, from our knowledge of the keen interest taken by the men of Hastings and the district in Natural Science, will be both interesting and successful. The position of Sussex is such that rare species from the Continent frequently visit its shores, while it is also well situated for observations on migration. Evidence of this is given in the present part by the article of Dr. N. Ticehurst on the Yellow Wagtails and the breeding in Sussex of *Motacilla flava* in particular, and that of Mr. Butterfield on British Birds obtained in the county, while the President, Mr. Parkin, contributes an interesting paper on Extinct Birds, with plates of the Dodo.

36. *Headley on Evolution.*

[Life and Evolution. By F. W. Headley. London: Duckworth & Co., 1906. 8vo. Pp. i–xvi, 1–272.]

We are sorry that the subject of Mr. Headley's book precludes us from giving a full notice of its contents, for in less than three hundred pages he gives an admirable exposition of the main facts of animal and plant life in a manner that is at once popular and scientific. The school-boys at Haileybury, for whom the lectures were originally written, are indeed fortunate in a master who so well understands their needs, but the book may be strongly recommended also to grown-up naturalists. Two chapters are devoted to Birds, in one of which the author traces, with the aid of many useful illustrations, the wonderful development of Reptile into Bird, and supplements his story with details of structure and notes on coloration, the senses, the breathing-powers, the temperature, and the powers of locomotion. In the following chapter the Flight of Birds is considered at length, with still further wealth of illustration, including figures and diagrams of the course of flight of birds, kites, and so forth, not to mention a toy flying-machine of the writer's own construction and a flying windmill. Very lucid explanations are given of the facts that enable a bird to fly, poise, soar, glide, rise, alight, and steer.

37. *Hole on the Birds of the Zambesi Valley.*

[Some interesting Birds of the Zambesi Valley. By H. Marshall Hole. Proc. Rhodesia Sc. Assoc. vol. v. part iii. p. 99 (Buluwayo, 1905).]

We are much pleased to learn from this paper that there is an ornithologist engaged in the study of the Avifauna of the district between the Victoria Falls and the Barotse Valley, which, we are told, is "the abode of countless birds, many beautiful, and some, until lately, unknown to science."

Mr. Hole's principal field-notes relate to the splendid Crimson-throated Bee-eater (*Merops nubicoides*), the Ground-Hornbill (*Bucorax cafer*), and the Marabou (*Leptoptilus crumenifer*), but other birds are mentioned. He should look out for the newly-discovered Love-bird of this district, *Agapornis nigrigenis* (see W. L. Sclater, Bull. B. O. C. xvi. p. 61).

38. *Journal of the South African Ornithologists' Union.*

[The Journal of the South African Ornithologists' Union. Vol. ii. No. 2. December 1906. Pretoria, Transvaal.]

We have now received the second part of the second volume of this Journal, and are glad to find that the South African Ornithologists' Union is making steady progress. The part commences with a report of the Third Annual Meeting of the Union, which took place in the Transvaal Museum, Pretoria, on the 25th of August, 1906, with Dr. J. W. B. Gunning, V.P., in the Chair. After the formal business of the meeting had been transacted, the Chairman gave an address on recent additions to the Museum, and other matters relating to South African Ornithology. The oological collection had been much enriched by the acquisition of the fine series belonging to Mr. Ivy, of Grahamstown. While highly praising Stark and Sclater's recently finished work on the birds of South Africa, the Chairman pointed out a defect which existed in the absence of the dates on which each species had been found in special localities, and sketched out a plan by which he thought the desired information might be obtained. Mr. J. A. S. Bucknill was elected President and Mr. A. K. Haagner Hon. Secretary for the ensuing year; and Messrs. Bucknill, Gunning, and Haagner were appointed as the Publication Committee for 1907, 1908, and 1909.

The two principal papers in this number of the Journal are an account by Mr. L. E. Taylor of the birds met with in the vicinity of Irene, near Pretoria, and "Notes on a Collection of Birds made in North-east Rhodesia by Dr. F. E. Stoehr," prepared by Dr. Stoehr and Mr. W. L. Sclater. The last paper is of considerable interest, as very little work on birds had been previously done in this part of Rhodesia. In the list 249 species are recorded, several of which are not to be found in the South African Catalogue—e. g., *Poliospiza reichardi, Macronyx fuelleborni, Parus insignis, Andropadus masukuensis, Hyliota barbozæ, Lybius macclouni,* and *Agapornis lilianæ,* all species known in Nyasaland. Dr. Stoehr found the White Stork (*Ciconia alba*) nesting near Feira in December—a very singular occurrence. Many interesting notes and notices conclude this excellent number, with which our South African friends have every reason to be satisfied.

39. *Kollibay's 'Birds of Silesia.'*

[Die Vögel der Preussischen Provinz Schlesien. Von Paul Kollibay. 1 vol. 8vo. Breslau, 1906. 370 pp.]

Herr Paul Kollibay, of Neise, a well-known German ornithologist and a Member of our Union, is the author of this useful Handbook of the birds of the Prussian Province in which he dwells. As no account of the birds of Silesia appears to have been published since the issue of Gloger's 'Schlesiens Wirbeltierfauna' in 1833, it is quite time that a new work on the subject should be prepared; and here we have it, from the pen of a fully competent authority.

Reichenow, in his last list, assigns 405 species to the Avifauna of the German Empire, of which 227 are breeding-birds. Herr Kollibay claims 317 for Silesia, of which

202 species nest more or less regularly within the confines of the Province.

We observe with much interest that Herr Kollibay's volume was fully discussed at the recent Anniversary Meeting of the German Ornithological Society at Breslau (see J. f. O. 1907, p. 167), and that he was rather taken to task for not having used trinomials more freely !

40. *McGregor on Philippine Birds.*

[(1) Notes on Four Birds from Luzon and on a Species of doubtful Occurrence in the Philippines. Notes on Birds from Apo Island. Notes on a Collection of Birds from Banton. Notes on a Collection of Birds from the Island of Tablas. By R. C. McGregor. Philipp. Journ. Sc. i. p. 765.

(2) Notes on a Collection of Birds from Palawán Island. *Id. Op. cit.* p. 903.]

In the seventh and eighth numbers of the first volume of the 'Philippine Journal of Science,' which have lately reached us, Mr. McGregor continues his communications on the birds of the Philippine Archipelago. The contents of the four papers in the first article are sufficiently shown by their titles. The species "of doubtful occurrence" in Luzon is a large Swift, probably of the genus *Chætura*, flocks of which were seen by Mr. Worcester in the north. In Banton, a small island north of Tablas, examples of 21 species were obtained by a native collector sent out by the Bureau of Science. A curious nest of *Lalage niger* was obtained there, and is now figured. It is extremely slight and flat, like that of some Doves.

The second article contains an account of a collection made at Puerto Princes and Tinabog, on the east coast of Palawán, in December 1905 and January and February 1906, which contains "good series of the species (about 80 in all) characteristic of this island." One of them (*Hypotænidia striata*) is new to the List of the Birds of Palawán.

41. *Marek on the Influence of Wind and Weather on Migration.*

[Einfluss von Wind und Wetter auf den Vogelzug. Von Prof. M. Marek, Vincovci. Separat-Abdruck aus Ornithol. Jahrb. xvii. 1906, Heft. 3–6.]

Professor Marek, in the course of an elaborate paper, discusses the influence of wind and weather on the flight and migration of birds, with the effect of the barometrical maxima and minima upon it. He has spared no pains to examine every detail of the subject, which should be carefully studied by those interested therein, as it is impossible to give a proper idea of so wide a subject in our limited space. We may, however, say that the author considers that the effect produced is most marked and constant.

42. *North on Nests and Eggs of Australian Birds.*

[Nests and Eggs of Birds found breeding in Australia and Tasmania. By Alfred J. North, C.M.Z.S., Ornithologist, Australian Museum. Vol. ii. Part 1. Sydney, 1906 *.]

The second volume of Mr. North's work on the nests and eggs of the birds of Australia and Tasmania commences with the Laniidæ, of which two subfamilies—the Gymnorhininæ and Pachycephalinæ—are well represented in the Australian Subregion. This Part contains also the families Certhiidæ and Sittidæ, and a considerable portion of the great and characteristic Australian family Meliphagidæ. Ample details are furnished of the nesting and eggs of the species of these groups, so far as they are known, and excellent text-figures of many of the birds and nests are given in the letterpress. Besides these, three large-sized plates of nests and two of eggs accompany the Part. The figures of the eggs, which are of the natural size, have been reproduced by the heliotype process at the Government Printing Office from photographs. The execution throughout does great credit to the care and skill of our fellow-workers in Australia.

We regret to see that the recently proposed change of the name "*Sittella*" into "*Neositta*" is followed in this work. It appears to us to be quite unjustifiable (see our remarks, 'Ibis,' 1904, p. 154).

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* See 'Ibis,' 1905, p. 127.

43. *Oberholser on a new Humming-bird.*

[Description of a new Genus and Species of *Trochilidæ*. By Harry C. Oberholser. Proc. Biol. Soc. Washington, xviii. p. 162.]

Aeronympha prosantis (gen. et sp. nov.) is based on a single "Bogota" skin in the Field-Columbian Museum at Chicago. The form "seems most nearly to resemble *Zodalia*."

44. *Ribeiro on the Birds of the Serra Itatiaya, Brazil.*

[Vertebrados do Itatiaya (Peisces, Serpentes, Saurios, Aves e Mammiferos) resultados do Sr. Carlos Mereira, Assistente da Seccao de Zoologia do Museu Nacional. Por Alippio de Miranda Ribeiro. Arch. Mus. Nac. do Rio de Janeiro, vol. xiii. (1906).]

Sr. Ribeiro has kindly sent us a copy of his report on the Vertebrates collected by Sr. Mereira on the Serra de Itatiaya, between the provinces of Rio and Minas, which is said to rise to a height of 10,000 feet, and is therefore of much interest. The birds enumerated are 52 in number and are mostly of well-known species. Two, however, are described as new—*Synallaxis mereiræ* and *Musciphaga* (scr. *Muscivora* ?) *obsoleta*. The most interesting species is *Scytalopus sylvestris*, which is figured. But is it really *S. sylvestris*? It is more likely to be *S. indigoticus*. *S. sylvestris* is a Peruvian species, which would probably not occur in S.E. Brazil. It would have been better to give the elevation on the Serra at which each species was met with.

45. *Ridgway on new Genera of American Birds.*

[Descriptions of some new Genera of *Tyrannidæ*, *Pipridæ*, and *Cotingidæ*. By R. Ridgway. Proc. Biol. Soc. Wash. xviii. p. 207 (1906).]

Mr. Ridgway proposes sixteen new generic terms in the three above-named families:—*Aphanotriccus* (type *Myiobius capitalis*), *Terenotriccus* (*Myiobius fulvigularis*), *Myiotriccus* (*Tyrannula phœnicura*), *Atalotriccus* (*Colopterus pilaris*), *Placostomus* (*Platyrhynchus superciliosus*), *Cnemarchus* (*Tænioptera erythropygia*), *Orodynastes* (*Tænioptera striaticollis*), *Tyrannopsis* (*Muscicapa sulphurea*), *Tolmarchus* (*Tyrannus taylori*), *Phæotriccus* (*Cnipolegus hudsoni*), *Allocotopterus* (*Pipra deliciosa*), *Stictornis* (*Ampelis cinctus*), *Idiotrichus* (*Pogonotriccus zeledoni*), *Elainopsis* (*Elainea elegans*), *Microtriccus* (*Tyrannulus semiflavus*), and *Hylonax* (*Myiarchus validus*).

The first ten of these genera are referred to the Tyrannidæ, *Allocotopterus* to the Pipridæ, and the remaining five to the Cotingidæ.

We are not satisfied that all these forms deserve generic rank. For instance, *Pipra deliciosa* is, in our opinion, quite unnecessarily removed from *Machæropterus* (*cf.* Cat. B. B. M. xiv. p. 305), of which it has the structure in every respect, except that the abnormal characters of the remiges in the adult male are more highly developed. We should certainly *not* adopt the genus *Allocotopterus*.

46. *'Scotia,' Narrative of the Voyage of the.*

[The Voyage of the Scotia, being the Record of a Voyage of Exploration in the Antarctic Seas. By Three of the Staff. Blackwood & Sons, 1906. 1 vol. 8vo. 366 pp.]

This journal has been highly favoured by the contribution of the three excellent articles which Mr. Eagle Clarke has written on the collection of birds made by the 'Scotia' in the Antarctic Seas. We are sure that they have been much appreciated by all ornithologists.

We have now before us the narrative of the Scottish Antarctic Expedition, prepared by "Three of the Staff"—Messrs. Rudmose-Brown, Mossman, and Harvey Pirie, and have no doubt that ornithologists will be pleased with this book also, as it contains frequent references to birds and many illustrations of their strange ways in the South Polar Seas. The Penguins are, of course, the prominent group, and are appeciated, not only as a strange form of bird-life, but also for the high value of their flesh. It is even suggested that "it would be well worth while" to establish Penguin-rookeries on some of the barren islands of Western Scotland, and so to "introduce a new and delicious food to the inhabitants of this country"!

Again we read that the "great event in spring" at the winter-quarters of the Expedition was "the return of the Penguins to their rookeries. That signified surroundings full of life, a never-failing field to naturalists, and last, though almost the most important item, a plentiful supply of eggs and fresh meat." Shags, Petrels, Paddies, and Skuas are also often mentioned; but by far the most prominent feature of bird-life in Antarctica is evidently the Penguin.

The 'Scotia' left the Clyde on November 2nd, 1902, and went first to Port Stanley, in the Falkland Islands. Leaving Port Stanley in January 1903, she made an unsuccessful attempt to get through the Polar Pack, and finally returned to Laurie Island, in the South Orkneys, on March 25th. Here winter-quarters were established for some of the party, under the command of Mr. Mossman and Dr. Pirie; while the 'Scotia' retired to the Falklands and did not return until February 15th, 1904. It was during this period and the subsequent stay of Mr. Mossman and Dr. Pirie in the South Orkneys that the valuable collection was formed upon which Mr. Eagle Clarke based his second paper ('Ibis,' 1906, p. 145). On February 22nd, 1904, the 'Scotia' left Laurie Island on its second cruise southwards, when Coats Land was discovered, though the explorers were unluckily not able to land on it. The birds collected in this part of Antarctica form the subject of Mr. Eagle Clarke's third paper (above, p. 325); while those obtained on Gough Island, which was visited on the way home, form the subject of Mr. Eagle Clarke's first paper ('Ibis,' 1905, p. 247).

It should be always recollected that, although his name does not appear on the titlepage of the present work, Mr. W. S. Bruce was the originator and leader of the Scottish Antarctic Expedition, which, with the financial assistance of two members of the Coats family and other patriotic countrymen, he carried to such a successful termination.

47. *Whitman on the Origin of Species.*

[The Problem of the Origin of Species. By Charles Otis Whitman. Reprinted from 'Congress of Arts and Science, Universal Exposition, St. Louis, 1904,' vol. v.]

Professor Whitman here attempts to reconcile the theory of Natural Selection, as understood by Darwin and Wallace, with those of Orthogenesis or "definitely directed variation as the result of the inheritance of acquired characters," and Mutation or "sudden saltation." He does not consider that they are necessarily contradictory, but thinks that either Orthogenesis or Mutation may originate variation and that Natural Selection may follow thereupon. Variation may be "orderly" as well as "orderless." The writer elucidates his views by means of Pigeons and Doves, in which he considers the connexion between chequered and barred patterns; while he strongly upholds the view—with which we agree—that, where possible, wild forms should be studied in preference to fanciers' varieties, which are seldom more than nominally pure.

XVII.—*Letters, Notes and Extracts.*

We have received the following letters addressed "To the Editors of 'The Ibis'":—

Sirs,—I have the pleasure of informing your readers that I have lately obtained for my collection the following rare birds which were captured in this country:—

They are (1) a young example of *Larus leucopterus*, killed in November 1905 on the lagoons near Venice, and constituting the first trustworthy record for Italy; (2) an adult male, in full spring dress, of *Larus ichthyaëtus*, captured on the Isola Vacca (Sardinia), May 6th, 1906. This is the third occurrence of the bird in Italy, and it may be mentioned that the first two specimens obtained were taken by myself at the same spot[*]. Recently, at the beginning of last December, I received from the neighbourhood of Padua a beautiful adult male (in full autumn plumage) of (3) *Turdus atrigularis,* which is the ninth Italian specimen preserved in our museums; and (4) three hybrids between the Common Pochard and the Ferruginous Duck (well known as *Fuligula homeyeri*). They are all adult males, and were captured in the large marshes at the mouths of the River Po, where Pochards and the allied diving-ducks are extremely plentiful in winter-time.

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[*] *Cf.* E. Arrigoni Degli Oddi, Man. Orn. Ital. p. 805 (1904).

Yours &c.,
Count E. ARRIGONI DEGLI ODDI, M.B.O.U.

Padua (Italy),
Jan. 10th, 1907.

SIRS,—In the December number of Orn. Mon. (xiv. 1906, no. 12, p. 190) Dr. Reichenow describes as new a Crane from North-eastern Siberia (Bay of Anadyr) under the name of "*Grus niediecki.*" The *single* specimen of the bird is said to be very similar to *G. canadensis,* but differs in being much *smaller* (wing 430 mm., tail 150 mm., bill 88 mm., tarsus 165 mm.) and in having the cheeks and throat *whitish grey.*

In working over my Siberian collections I carefully compared in the Academical Museum of St. Petersburg three specimens of Cranes from Anadyr collected by Dr. Grinewtzki, with three from Western America (a male from Northern California, 23 Feb., a female from the Mission of St. Raphael, N. Calif., 10 Jan., and a young bird from Herba Buena, San Francisco Bay, Nov.), all collected by Vosnessensky.

I find that all these birds are practically identical, being light grey with dark slaty primaries, clear lavender-grey neck, whitish cheeks and throat. The only difference in plumage of the Anadyr birds is that they are somewhat more stained with dirty ochreous or bay colour, but this is usually the case in summer specimens of all grey Cranes.

I may add that the whitish throat and cheeks of American specimens of *Grus canadensis* were mentioned as long ago as 1884 by Baird, Brewer, and Ridgway (Water Birds of N. A. i. p. 408), as also the frequent rusty wash of its general grey colouring.

As to the size of these specimens, I here quote my notes fully :—

Locality	Anadyr.			California.		
Age	Ad.	Ad.	Ad.	Ad.	Ad.	Juv.
Sex	?	?	?	♂.	♀.	
Wing	500	500	480	495	520	455
Tail	170	195	180	183	195	175
Tarsus	190	225	185	213	235	198
Middle toe with claw	80	99	81	89	94	84
Culmen (exposed)	82	102	89	90	(126)	92
Bill from gape	90	108	96	97	(135)	97
Bill from nostrils	60	68	59	60	(89)	60

The measurements are in millimetres, and those of the bill of the female of the Californian species are bracketed, as it had a malformation of this organ, the maxilla being unusually elongated and hooked.

So it is obvious that the Cranes of the North-eastern shore of Siberia are, as might well be expected, identical with those of Western America, and "*Grus niediecki*" is only a synonym of *G. canadensis*.

Yours &c.,

S. A. Buturlin.

St. Petersburg, Zool. Mus. Acad.,
Feb. 2nd, 1907.

Sirs,—Mr. A. Hyatt-Verrill, of Newhaven, U.S.A., has favoured me with the following communication in reference to the alleged extinction of the Dominican Parrot (*Chrysotis bouqueti*) :—

"My attention has just been called to your article in 'The Ibis' for October 1906, in which you state, on the authority of Mr. Clark, that the Dominican *Chrysotis bouqueti* is extinct. During the past three years I have resided in Dominica, and have made extensive collections of the birds. I have found *Chrysotis bouqueti* particularly abundant and easy to procure, and have secured over forty specimens. Graf von Berlepsch has a number which I sent him, and others were disposed of to various collectors. This species is increasing rapidly, and spreading over the whole island. On a former visit, fifteen years ago, I found Bouquet's Parrot much rarer than *C. augusta*, whereas at the present time it is far more common. The birds are found within a few miles of Roseau, and are particularly abundant in the Lagoon valley in the central part of the island, where they are very tame and feed near the houses of the planters in enormous flocks. In fact, at that place I have shot them from the verandahs of the houses. They are killed in large numbers for the market, and during the open season can be always bought for one shilling each.

"How Mr. Clark could have been misled into supposing this Parrot extinct is inexplicable to me."

I am, Sirs, yours &c.,
Count T. Salvadori.

Zoological Museum,
Turin,
Jan. 15th, 1907.

Sirs,—Taking advantage of the Christmas vacation of the Colorado College I made a hasty trip to the Eastern States with the object of renewing my acquaintance with some of the Museums there. Leaving Colorado Springs at 10.40 a.m. on the 22nd of December, I reached New York at 5.30 on the afternoon of the 24th, thus accomplishing a journey of 2000 miles in 55 hours, with a single change of carriage at Chicago.

I spent the inside of the week at New York, but as I was staying in Long Island and the Christmas celebrations intervened I had not so much time as I could have wished to see everything.

One day was spent at the Zoological Park, where Mr. C. William Beebe, the Curator of the Birds, kindly shewed me all that was of interest. The Park lies a long way from the centre of New York, about eleven miles from the City Hall, and a journey of nearly an hour has to be made either by one of the Elevated Railways or by the Subway, as they call the new Underground Railway. The Park is beautifully situated, the rising ground being covered with woods and the Bronx River running through it, and its area is no less than 260 acres.

At the time of my visit, in midwinter, very few of the animals or birds were outside, and the large "Flying Aviary" was practically empty, all the denizens having been removed to the neighbouring Bird-house and the Ostrich-house. Mr. Beebee has taken special interest in forming a collection of American Passerine Birds, a great many of which seem hardly ever to have been kept in captivity successfully before. He has also a fairly extensive collection of European small birds. All these are at present housed in one wing of the bird-house in large cages, running from the floor to the roof. In the centre of the main portion of the house is a large cage for Waders and Shore-birds, where I saw several American Skimmers, which I had never before met with in confinement. Another bird which I do not recollect to have seen before in captivity was a Frigate-Bird; this was in the other winter-house together with a number of the larger forms, such as Cranes and Herons. All the inhabitants of the Zoological Park were certainly in wonderfully good condition, and spoke volumes for the care bestowed on them by Mr. Hornaday and Mr. Beebee.

At the American Museum of Natural History I found Mr. Allen in charge of the Mammals, and Mr. Frank Chapman of the Birds. Among the exhibited series two great groups—Bird-life in the San Joaquin Valley and Flamingos breeding in the Bahamas—are probably familiar to most of your readers, as several photographic reproductions of them have been published, but Mr. Chapman is now completing another series of bird-groups which certainly surpass anything that I have ever seen in beauty and vividness. A series of separate installations have been arranged along a gallery directly under a row of windows; between the installations and the public there is a boarded partition where windows are let in opposite each group. The result is that the light is all concentrated on the exhibition while the visitor is in a comparatively dark corridor. In fact, the effect is very similar to that in an Aquarium. Each exhibition consists of a typical scene of bird-like from some part of America, with a semicircular background of scenery very beautifully finished and copied from Nature, while the vegetation and other accessories in the foreground are carried out with great accuracy of detail.

Among the scenes which I recall are the Brown Pelicans nesting on Pelican Island in Florida, a representation of New Mexico with Cactus-Wrens, Thrashers, Road-runners, and other characteristic Desert-forms. There is also a Golden Eagle on its nest from the Rocky Mountains in Wyoming, while several other groups are in preparation. On the whole, though slightly theatrical, they are the most beautiful and perfect representation of Bird-life that I have ever seen.

Another interesting exhibition is that of the commoner birds found within a short distance of New York. In the case of the migratory birds the specimens are changed every month, so that the visitor can easily identify the ordinary local birds.

The skin-collection under Mr. Chapman's charge is now growing very large; it is arranged in small, square, air-tight cases made of tin, into which are fitted light trays; as the cases are quite light and handy they can be readily shifted about, and it is easy to lay hands on any particular group or family for the purpose of study.

I spent a day at Cambridge, where most of my time was occupied in visiting the Agassiz Museum of Comparative Zoology. Since I last saw the Museum—some twenty-three years ago—considerable additions have been made, while a great many improvements are being carried out in the matters of installation and the renewal of faded specimens by Mr. Samuel Henshaw, the Director. The general plan of a geographical arrangement remains the same, and separate rooms are devoted to each of the great Faunal divisions of the World.

The study-collections of Mammals and Birds are under the honorary Curatorship of Messrs. O. Bangs and J. Brewster respectively. I was unfortunate enough to miss both these gentlemen, but Mr. Henshaw shewed me the general arrangement of the collections. Both Birds and small Mammals are contained in large box-like cases made of wood about 3 ft. × 3 ft. × 5 ft., lined with tin and closed in front by an air-tight door, which is not on hinges, but comes away quite freely when opened. Inside these are fitted with drawers or trays of stout cardboard in a frame of wood.

The cost of such cases, as Mr. Henshaw informed me, is from $7 to $8 apiece (about 30*s.*), and each would hold nearly a thousand small bird-skins. This seemed to me a very economical method of storage.

From Boston I travelled straight through to Princeton, New Jersey, where I was the guest of Mr. W. B. Scott, Professor of Geology in Princeton University. This is a charming Old-World spot, full of ancient houses and memories, dating back to old Colonial times. The University was founded in the time of George II. The Museum-collections are not at present in a very satisfactory state, as they are distributed among several buildings, and there is no room for an adequate display, but a new Museum is now in course of erection and will shortly be completed. The Vertebrate Palæontological material gathered together by Professor Scott from the Western States and from Patagonia in South America forms, of course, the most valuable and extensive portion of the collection, but there is also a very complete local collection of Birds mounted by Mr. W. E. D. Scott, a namesake of Professor W. B. Scott, who is the Honorary Curator of this department.

At Washington I spent some time at the Biological Survey, the Smithsonian and the United States National Museum, all of which are close together in a stretch of park on the south side of the City which runs from the White House towards the Capitol. The new National Museum is in the same park just opposite the old building, and is rapidly rising from its foundations, but it will be some time yet before it is completed; in the meantime very little is being done in regard to the exhibition-collections in the old buildings. Mr. Ridgway was unfortunately in the country when I called; he spends a good deal of his time there, working at the fourth volume of the 'Birds of Middle and North America,' but I had the pleasure of meeting Mr. Richmond, Dr. Merriam, Messrs. Bailey, Oberholser, and Osgood, all of the Biological Survey.

On my way back west I spent a day at Chicago. At the Field-Columbian Museum Mr. W. B. Cory is now in charge of the department of Birds and Mammals in place of Mr. D. G. Elliot, who has recently resigned and settled in New York. The glory of the Field-Columbian Museum is undoubtedly a series of groups of larger Mammals, chiefly African: these are beautifully modelled and mounted by Mr. Akerley, the chief taxidermist, who is now on his way back from another collecting-trip in East Africa. They form a double row of large square free-standing cases down one of the long and lofty aisles of the building. The Bird-room was closed for rearrangement, and from what I saw of the collection it would certainly require a good deal of weeding out and renewal.

In the afternoon I visited the Museum of the Chicago Academy of Natural Sciences, which is situated in Lincoln Park, about three miles north of the City, while the Field-Columbian Museum must be at least six miles in the other direction. The collections here, though small and unambitious and chiefly confined to the Fauna of the Mississippi Valley, are very well installed, and reflect great credit on Mr. Woodruff, the taxidermist and Curator of the Bird-department.

I reached Colorado Springs on the evening of the 6th of January, having been absent just fifteen days, after a very instructive and enjoyable excursion.

I am, Sirs, yours &c.,
W. L. Sclater.

Colorado Springs, Colorado,
Feb. 2nd, 1907.

The Anniversary Meeting of the German Ornithological Society. — The Fifty-sixth Anniversary Meeting of the "Deutsche Ornithologische Gesellschaft" (for 1906) was held at Breslau on the 21st of September last and the three following days, and, as will be seen by the Report on it in the last number of the 'Journal für Ornithologie,' was well attended. Many interesting subjects were discussed, amongst which were Herr Kollibay's new book on the birds of Silesia (see above, p. 357), Krause's 'Oologia Universalis Palæarctica,' the work carried on at the bird-observatory of Rossitten, and Dr. Merzbacher's collection of birds from the Thian-shan, in Central Asia. On the 24th an excursion was made to the Trachenburger See, to view the water-birds there. Dr. R. Blasius was re-elected President of the Society, and Dr. Reichenow General Secretary.

The International Zoological Congress of 1907.—The Seventh International Zoological Congress will be held at Boston, U.S.A., in August next, commencing August 19th. There will be a special Section (4) devoted to Ornithology, and we hope that some of our Members may be able to attend.

Mr. Witmer Stone (Academy of Natural Sciences, Philadelphia, U.S.A.), who is the Secretary of the Ornithological Section, writes to us on this subject as follows:—

"Will you kindly publish in your next number that I shall be pleased to hear from any British ornithologists who contemplate attending the Seventh International Zoological Congress at Boston in August next, and to answer any inquiries or furnish any details relative to the meetings.

"We are making every effort to have the meetings of the Ornithological Section thoroughly representative, and cordially invite all British ornithologists to attend.

"Opportunities will be offered of visiting the larger museums of the east, and everything will be done to make the visit a pleasant one."

Mr. C. H. B. Grant's Collection of South African Birds.—By the generous assistance of Mr. C. D. Rudd, Mr. C. H. B. Grant, one of the taxidermists who made for Col. Sloggett the interesting collection of the birds of Deelfontein described by Dr. Bowdler Sharpe in this Journal ('Ibis,' 1904, pp. 1, 313), has been enabled to continue collecting mammals and birds in South Africa, under the direction of

Mr. Oldfield Thomas, and has sent home to the British Museum upwards of 3000 bird-skins, besides some nests and eggs*. Mr. Grant went first to British Namaqualand in March 1903, and collected mammals and birds at Klipfontein and other places in that district. Returning to Cape Town he proceeded to Wakkerstroom in the S.E. Transvaal, where he passed March, April, and May 1904. Subsequently Mr. Grant visited the Knysna district of the Cape Colony, Zululand, and the Zoutpansberg province of the N.E. Transvaal, and made excellent collections in all these quarters.

The Mammals of the "Rudd Exploration" have been described by Mr. Oldfield Thomas in a series of five papers published in the P. Z. S. (1904–1906); the Birds are still waiting for description, which, we trust, will soon be undertaken. There are not likely to be many novelties, but the list will, no doubt, largely add to the exactly known localities of South African birds.

The Foundation of the B. O. U.—The 'Proceedings' of the Ornithological Congress of 1905 have reached us too late for a proper Notice of their Contents to be inserted in our present Number, but there is a statement in the Presidential Address which requires immediate correction, as it concerns the Foundation of the Union. The true story was told in the preface to our first volume. The statement now made in the 'Proceedings' of the Congress (p. 110) that "the founders of 'The Ibis' consisted of a small number of College friends who happened to meet first at Canon Tristram's house at Castle Eden" is quite erroneous as regards the place of meeting; and, as Canon Tristram was an Oxford man, the expression "College friends" can hardly be applied to the several founders. Every one of the informal gatherings which led to the formation in 1858 of the B. O. U. took place at Cambridge, and not a single Meeting of any sort connected with the affair was held at Castle Eden, though undoubtedly Canon Tristram was one of the Founders of the Union.

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* See Hist. of the Collections of the Nat. Hist. Department of the Brit. Mus. vol. ii. p. 460.

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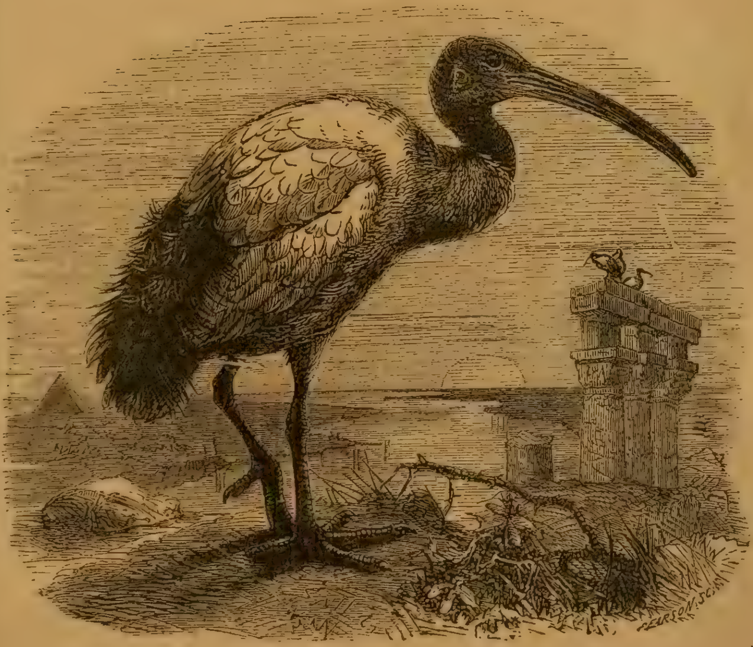

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No. III. JULY 1907.

XVIII.—*Notes on Birds of Tahiti and the Society Group.*

By Scott B. Wilson.

(Plate VIII.)

I left San Francisco on March 18th, 1904, by the S.S. 'Mariposa,' and arrived at Papeete on March 30th. Papeete is the capital of the island of Tahiti, and had, at the time of my visit, a population of about five thousand people. Most of the houses are built of wood, and the picturesque aspect of the town has not yet been spoilt either by the erection of immense stores or electric tramways, as in the case of Honolulu.

On April 9th I started on a driving-tour, my first stopping-place being the hospitable abode of Mr. Tati Salman at Papara, a delightful spot about thirty miles to the south of Papeete, and possessing a great advantage over it in its much cooler climate, which is as near perfection as can be found in any part of the world. After a few days' stay there we continued our tour as far as Tautira, a beautiful district which has preserved its native appearance owing to the considerable number of grass-houses still existing, which in most districts have been replaced by frame-houses. Here Robert Louis Stevenson made a stay of three months whilst exploring the Pacific in the 'Casco' in 1890. I returned to Papeete by the same route to hear that a "permis spécial" to collect had been granted me by the courtesy of the acting Governor, M. Henri Cor, my request having been brought before him by the kindness of the British Consul, Mr. R. T. Symons, to whom I owe my sincerest thanks on this occasion and on many others during my residence in Tahiti. My first stay of any length was at Papara, and it was there that I first obtained specimens of several Tahitian birds, including the Oopa (*Ptilopus purpuratus*). Little objection was made to my shooting specimens of this beautiful Dove on account of its destructiveness to the flowers of the vanilla (*Vanilla planifolia*), which has been extensively planted in the forests. At the mouth of the stream which runs into the sea at Papara, *Ardea sacra, Butorides stagnatilis,* and *Totanus incanus* were fairly common.

In May I made a short trip to the north of the island, to the district of Haapepé, penetrating as far as Point Venus, where the monument erected by the Royal Geographical Society to Captain Cook is situated. Wild Ducks (*Anas superciliosa*) were fairly abundant there, but very few other birds were observed.

On May 27th I embarked on the Union S.S. Co.'s steamer 'Taviuni' for Rarotonga, Cook Islands, touching at two islands of the Leeward group, Huahine and Raiatea, and arriving at Avarua, the chief port of Rarotonga, on June 1st. There I was soon installed in a room of the former palace of Queen Makea, and was introduced the following day to the Administrator, Colonel Gudgeon. He expressed the opinion that there were very few species of birds left on the island; and this opinion was certainly confirmed by my non-success, as during my stay of nearly a month I observed only three or four different forms. As it only requires about four hours to make the complete circuit of the island in a carriage, it seems probable that no very large number of species ever existed there, and those which are left will, in my opinion, be extinct in a few years' time, owing to the increasing plantations of cocoanuts and bananas.

On June 22nd we re-embarked for Tahiti, after a delightful stay, taking with us some fine specimens of the Rupé (*Globicera pacifica*), a fine Pigeon, though not so handsome as the Rupé of Tahiti (*Globicera wilkesi*).

In July I explored the district of Hitiaa in the island of Tahiti, and on July 2nd was fortunate in obtaining my first specimen of *Globicera wilkesi*, after a very hard day's tramp in the interior of the island, along knife-edged ridges under a blazing sun. The Omao (*Tatare otaitiensis*) was fairly common there, as well as the Oopa (*Ptilopus purpuratus*). On a subsequent visit to the district of Hitiaa I was unsuccessful in obtaining specimens of the *Globicera*, and consider it to be a rare bird.

In August I spent a week on the island of Moorea, opposite to and in sight of Papeete, but met with little success in collecting, as *Ptilopus purpuratus* was the only bird obtained. A few years back, I was assured, a species of Parrakeet existed there, probably *Coriphilus taitianus*, but it is now apparently extinct, as is the case in the neighbouring island of Tahiti. Ten days in the month of September were passed between Vairao and Tehaupoo on Tahiti, but no new species were met with, though the visit was well repaid, as native life in this remote corner of the island was seen at its best.

In early November I left with two companions and a cook by the S.S. 'Taviuni' for Bora-Bora, spending a day at the island of Raiatea on the way. At Raiatea I chartered a small cutter, and, starting for Bora-Bora at noon, arrived there at daybreak on the following day. This is the fascinating island so well described in 'The Earl and the Doctor,' and is still unspoilt, for at the date of my visit there were only three Europeans resident on it. I was fortunate enough to obtain several specimens of *Coriphilus taitianus* in the cocoanut-trees which fringe the shore, so that my trip from Tahiti was not made in vain, uncomfortable enough though the return was, in a small gasoline schooner packed with natives and fruit. Two species of Kingfishers were common on Bora-Bora (*Halcyon veneratus* and *Todiramphus tutus*), and I also obtained a specimen of the Oopa (*Ptilopus*), which is quite a distinct local form. On December 9th I left Papeete for Auckland on my homeward voyage. I here append a list of the species obtained by me, with a few notes on their habits.

GLOBICERA WILKESI. (Rupé.)

This magnificent Pigeon is now rare on the island of Tahiti, and during my stay there I was able to obtain but very few specimens. It inhabits the interior of the island, and is shy and difficult to shoot. In the crops of two examples which I procured on June 2nd in the district of Hitiaa was a large quantity of seeds of the Iié vine (*Freycinetia arborea*), but I was told that their chief food was the *fei* or wild plantain, though they also eat the seeds of the banyan-tree. I kept one of these birds alive in a cage in Papeete for over two weeks and fed it on bananas. The flesh is greatly esteemed by the natives, and this fact will contribute to the bird's speedy extinction.

GLOBICERA AURORÆ.

A friend was kind enough to send me several fine specimens of this Pigeon in alcohol from the island of Makatea. I deeply regret to say that he perished with his schooner in the cyclone of March of last year (1906).

PTILOPUS PURPURATUS. (Oopa.)

This lovely Dove is still fairly abundant on Tahiti and does much damage to the vanilla. I also found in the crops the fruit of the Chili pepper and various seeds, including those of the banyan-tree. On the adjacent island of Moorea I obtained several specimens, which differed in no way from those shot on Tahiti. On Raiatea and Bora-Bora, however, in the Leeward group, the form differs considerably, there being much more yellow on the under parts of the body. On these two neighbouring islands the Pigeon seems to be identical, as is the case with specimens from Tahiti and Moorea.

PTILOPUS RAROTONGENSIS.

I observed one individual of this Pigeon during my stay of nearly a month on Rarotonga, but did not obtain a specimen myself, though one preserved in alcohol, which had been shot by a native, was given to me.

GLOBICERA PACIFICA. (Rupé.)

During my visit to the island of Rarotonga I obtained several specimens. In their crops were banyan-seeds, and I was told that they feed on the wild plantain and on the banana. I fear that this bird is likely to become extinct shortly, as its flesh is highly esteemed by the natives, particularly when made into soup, while wild cats and the frequent cyclones, which destroy the forest-trees, are also contributing causes to its extinction.

APLONIS CINERASCENS. (Omao.)

Still fairly abundant on Rarotonga. It has a very sweet song, but is most stealthy in its movements, and conceals itself in a wonderful way among the leaves. Most of the specimens which I obtained were in the Kukui trees (*Aleurites triloba*).

TATARE OTAITIENSIS. (Omao-Omao.)

This bird, which has a particularly sweet song, deserves to be called the Tahitian Nightingale. In certain districts it is far from rare, but owing to cats, the destruction of the forests by cultivators, and the frequently occurring cyclones already referred to, it is likely to become extinct before many years are over.

HALCYON VENERATUS. (Ruru.)

This species is fairly common, especially on the island of Bora-Bora.

TODIRAMPHUS TUTUS.

Common throughout the Tahiti group.

BUTORIDES STAGNATILIS. (Do.)

On a trip to the Lake of Vairia, an old crater in the heart of the mountains on the island of Tahiti, I obtained two specimens of this bird. It frequents the numerous mountain-streams which are found throughout the island.

ARDEA SACRA.

I shot a fine specimen, nearly an albino, at Papara, on Tahiti.

TOTANUS INCANUS. (Ulili.)

Fairly abundant on the sea-coast of Tahiti.

ANAS SUPERCILIOSA.

Fairly abundant throughout the Tahiti group.

GYGIS ALBA.

This Tern nests in trees, and is fairly common on the island of Tahiti.

COLLOCALIA FUCIPHAGA. (Opea.)

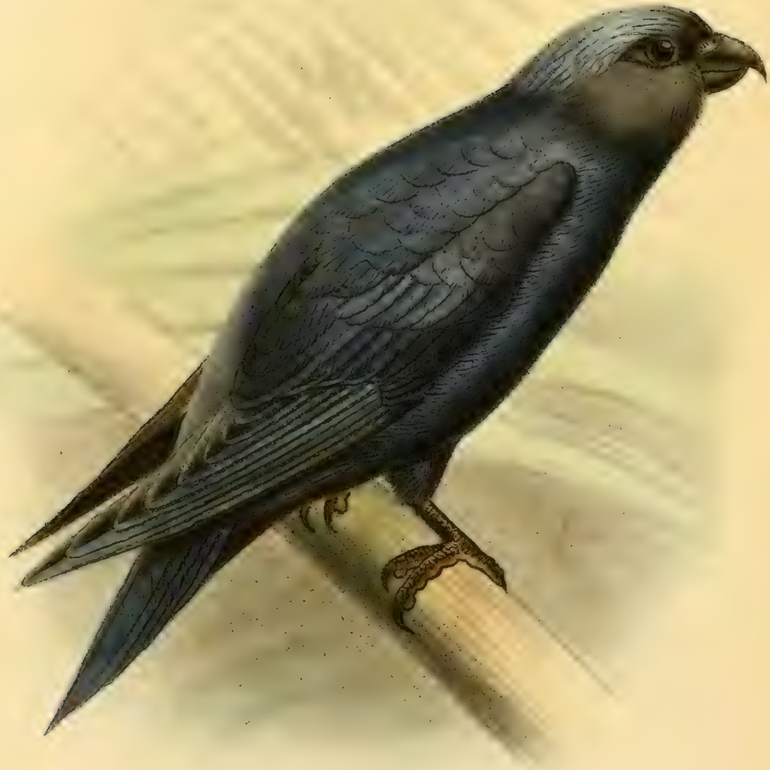
On August 27th I saw a great number of these birds in a deep rocky ravine near Papehui, on Tahiti. Their nests were attached to rocks over our heads, and it was impossible to reach them.

CORIPHILUS TAITIANUS. (Vinni.)

This beautiful species is, without doubt, extinct on the islands of Tahiti and Moorea. On Bora-Bora I obtained specimens in the high cocoanut-trees which fringe the shores of the island, where their shrill chirp soon betrayed them; but their quick movements and the dense foliage, added to the great height of the trees, made it difficult to shoot them.

CORIPHILUS CYANEUS, sp. nov. (Plate VIII.)

On the island of Bora-Bora I obtained a single specimen of a *Coriphilus* of a dark purple colour, and herewith append its description. I am strongly of opinion that it belongs to a distinct species, and Dr. Finsch, who has compared it with another dark-coloured specimen, apparently identical, which was brought alive on a schooner from one of the Paumotu



F. W. Frohawk, del. J. Smit, lith.

Bale & Danielsson, L^{td} imp

CORIPHILUS CYANEUS.

group along with specimens of *Coriphilus taitianus*, also considers it distinct. Dr. Finsch says in a letter to me:—"After a careful and repeated comparison I have not the slightest doubt that the two dark blue birds are by no means young birds, but old ones.

"The blue colour is as bright as in the specimen of *C. taitianus*, also the rather stiff shafts of the feathers on the head are similar, although not quite so long. The tips of the tail-feathers are worn, as would be the case in old birds; and I cannot think that such a small bird would need two years to become mature. The few feathers tipped with dull white on the upper and lower mandible are, in my opinion, accidental, and no sign of immaturity.

"The Paumotu specimen is duller in colour and has the base of the bill lighter, on account of its having been preserved in alcohol. The two dark specimens are also smaller."

Dr. Finsch concludes by giving the following diagnosis:—

"CORIPHILUS CYANEUS, sp. nov.

"The blue parts just the same as in *C. taitianus*, but cheeks, chin, and throat not white, but dull black.

"Bill and feet not red, but black."

Description.—Adult male. Wholly of a deep rich glossy purple, excepting the chin and throat, which are duller (inclining to dusky) and blend into the upper breast; the basal half of the throat-feathers greyish white; the tail and primaries bluish, shot with purple, chiefly on outer webs: the inner webs of the secondaries blackish; the feathers of the crown reaching to the nape, linear, lanceolate and of a shining purple colour. Bill, legs, and feet black.

Dimensions.—Total length $5\frac{3}{4}$ in.; wing $4\frac{1}{4}$ in.; tail extending $\frac{1}{3}$ in. beyond wing; culmen $\frac{5}{12}$ in.; tarsus $\frac{1}{2}$ in.

N.B.—In *C. taitianus* the white on the fore-neck goes further down, and covers the upper breast also, whereas in *C. cyaneus* the black covers only the throat.

XIX.—*On the Habits of the Birds-of-Paradise and Bower-birds of British New Guinea.* By Dr. Colin C. Simson.

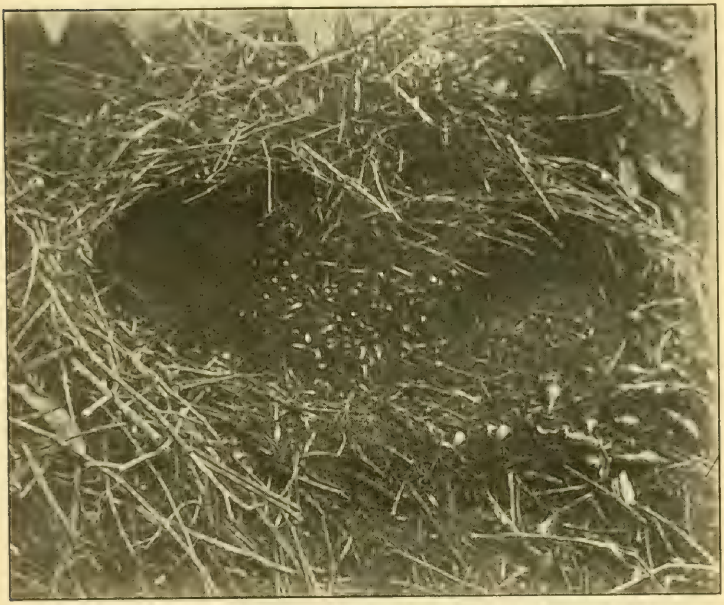
While in New Guinea in 1905 I journeyed across the Owen-Stanley range of mountains from Port Moresby to Kokoda Station and back, during the months of November and December. In my travels I visited the Moroka, Eafa, Kagi, and Isurava districts, and I was most of the time at fairly high elevations. Some of the notes that I have written are based on information supplied to me by my guide Anthony, who has frequently made expeditions into these mountains to collect birds.

I have seen six of the playgrounds depicted in the first two photographs in the Eafa and Moroka districts, Central division. All of them were situated on the slope of a hill on ground well shaded by trees, and usually a little below the summit of a ridge. They were met with at an elevation, I think, of from 3000 to 6000 feet above sea-level.

Each playground consists of a dome-shaped mass of twigs, about two feet in height and three in width. In this mass of twigs are two rounded openings communicating within and facing the yard in front. Situated between the two openings is an almost black flower-bed, composed of fibre taken from the stems of tree-ferns. Into this bed the bird sticks flowers, berries, bright-coloured leaves, and beetles. In front of this structure is a yard enclosed with twigs, and over this yard in every playground that I saw were strewn brilliant scarlet fruits, and sometimes a few flowers.

The first photograph (text-fig. 26, p. 381) does not depict a typical playground, as there is no yard enclosed with twigs, but since it thus affords a good view of the garden I have chosen it for an illustration. Instead of the enclosed yard there was a forked bough suspended in front of this playground, one limb penetrating the fore part of the structure, while the bough was held in position by the other limb, which was fixed to the trunk of a neighbouring tree by some extremely tenacious glue. I should think that the united efforts of several birds must have been necessary to fix the bough in position. No doubt the birds used it for perching on when going in and out of the tunnel. Unfortunately I had to remove it, as it obscured the view of the garden, and would have been out of focus in the picture. At the upper left-hand corner of the flower-bed are four or five small oval bodies, which are pale mauve-coloured beetles. The trumpet-shaped flowers plainly seen in the photograph are bright yellow. Of the other white specks those of an irregular contour are cream-coloured flowers, and those with an even contour bright blue berries. The leaves stuck in the garden are of a yellowish green colour. On the ground in front may be noticed the large scarlet fruits. The decorations, as a whole, have a very striking appearance when seen in their natural colours.

Text-fig. 26.



Playground of a Bower-bird (*Amblyornis*).

I send a second photograph (text-fig. 27), as, although imperfect and only shewing indistinctly the two openings with the flower-bed between them in the background, it has a typical enclosed yard in the foreground.

Text-fig. 27.

Playground of a Bower-bird (*Amblyornis*).

In some of the playgrounds the contents of the garden were arranged in a definite order. In one there were yellow flowers on one side and blue berries on the other. It is very common to see a mass of scarlet fruits in a rotting condition lying a yard or two from the playground, where they have been thrown by the birds.

No doubt the nature of the decorations varies according to the flowers and berries which are in season. I have never seen in these playgrounds the shells, feathers, and pebbles which are met with in those of some of the Australian Bower-birds.

It is very difficult to see the birds in the playgrounds. They keep a sharp look-out for all intruders, hiding in the trees and uttering no cry while anyone is about. After watching a playground without success I have visited it the next morning and found fresh flowers placed in position. I obtained one Orange-crested Bower-bird, which is, I think, *Amblyornis subalaris*, but may be *Amblyornis inornata*. This specimen was shot on a ridge where I had seen three of these playgrounds, but was met with at a slightly higher elevation and about five miles further along the ridge. Anthony and the natives informed me that it is this bird which makes the playground described above. There is a rare native curiosity composed of the separate feathers of the crests of the Bower-birds strung together to form a headdress. The natives, no doubt, obtain the birds by trapping them in their playgrounds.

There is another kind of playground of which I have seen three in the Kagi district and on the main range; all of them, I think, were at an elevation of over 6000 feet, and of one I give a rough sketch in vertical section.

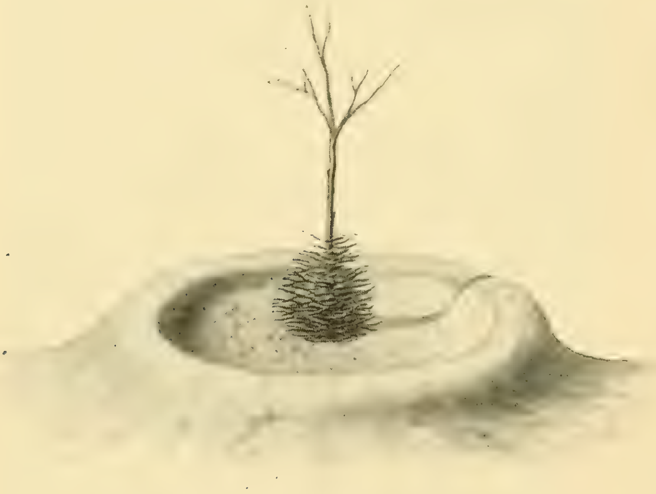
The playground (text-fig. 28, p. 384) consists of a space about four and a half feet in diameter, shaped like a saucer and lined with moss. In the centre of the saucer and round the stem of a bush is a loose bundle of twigs with no openings and about a foot and a half in height. The three playgrounds which I saw were situated on the summits of ridges where they could be easily seen by a traveller, as the native tracks as a rule follow the tops of ridges. I have not been able to find out what bird makes them, but have no doubt that they are formed by a different species to the maker of that first described *.

* [A similar playground has been described and figured by Mr. De Vis in one of his reports on British New Guinea (1890–91), and is there attributed to *Amblyornis subalaris*.—Edd.]

We also shot one specimen of the New Guinea Cat-bird (*Ælurædus stonii*), and found several of its nests which were all, I think, at an elevation of about 4000 feet. I saw three myself, situated in low *Pandanus*-trees and easily reached by the hand without climbing. The structure is cup-shaped. It is composed of dry tendrils and contains only one egg of a yellowish white colour.

During our journey we obtained altogether examples of eleven species of Birds-of-Paradise, besides Bower-birds.

Text-fig. 28.



Rough sketch of the Playground of a Bower-bird.

In the district below 3000 feet we found *Paradisea raggiana*, *Ptilorhis intercedens*, *Cicinnurus regius*, *Diphyllodes magnifica*, and a Manucode. Of these *Paradisea raggiana* was very common. From 3000 to 6000 feet above the sea-level we met with *Lophorhina superba*, *Parotia sexpennis*, *Drepanornis albertisi*, *Paradisornis rudolphi*, *Epimachus meyeri*, and *Astrarchia stephaniæ*. Of these *Lophorhina superba* was extremely common in most places, while *Epimachus meyeri* and *Astrarchia stephaniæ* were rarely met with, and *Paradisornis rudolphi* was only found in special localities.

From 6000 to 8000 feet in the Kagi district and on the main Owen-Stanley range we found only *Epimachus meyeri* and *Astrarchia stephaniæ*. At the higher elevation on the main range the latter was quite common, and I have seen as many as six individuals feeding on a single tree. The *Epimachus* was not so often met with.

We were fortunate enough to find the nest of *Paradisornis rudolphi* in our travels. The ridge where it was discovered must have been about 5000 feet above the sea-level and was in the Eafa district. Dense low scrub and bamboos were growing in the vicinity. The female every day made a harsh scraping noise close to our camp, but we were never able to catch sight of it, and thought that it must be a Bower-bird. On the fourth day I crawled into the low thick scrub within a few yards of our camp, and to my surprise the female came flying round my head. The nest was placed on a small tree above the low scrub, which hid it from view. We could never have found it if the bird had not shown us the way to it. A native climbed the tree and brought down a young bird almost exactly resembling the adult female, having the blue wings and white eyelids. I made the native return the bird, which I now regret having done. I might have reared it and could have described the nest, which the boy said was composed of twigs.

I spent many hours looking for the nest of *Paradisea raggiana* in places where there were numerous males calling, but without success. I think that *P. raggiana* must breed in the low scrub, as is the case with *P. rudolphi*, and not in the high trees where the males call.

The less common Birds-of-Paradise appear to lay only one egg. The nest of *Paradisornis rudolphi* already mentioned contained only one young bird.

Anthony told us that he once found the nest of *Seleucides nigricans*, built in a *Pandanus*-tree, with one egg. One of my boys (Marria) said that he once found a nest of *Diphyllodes magnifica* containing only one egg, which the bird had hatched. I believe, however, that *P. raggiana*, which is a very common bird, lays three eggs.

I opened the crops of all the species of Paradise-birds that we shot and examined the contents: that of *P. raggiana* contained the pulp of an orange-coloured fruit, called by the natives "*varrio*," sometimes other fruits, and occasionally a tree-grasshopper; that of the *Ptilorhis* two large seeds, one being about the size of a small hazel-nut and nearly as hard, which may have been the stone of a fruit. Other specimens of the *Ptilorhis* had soft fruit and tree-grasshoppers in their crops, while an example of *Cicinnurus regius* had wild-banana pulp and seeds. *Paradisornis rudolphi* had the skin and pulp of a large purple fruit and a tree-grasshopper. One individual of *Epimachus meyeri* had in the crop fruit almost exactly resembling the common English blackberry, and another had what looked like green moss and small green disk-shaped seeds. All the other species had soft fruit and sometimes tree-grasshoppers in their crops.

P. raggiana makes use of a special tree, where the birds congregate to dance and display their plumes. Anthony pointed out to me the dancing-ground of *Parotia sexpennis*. It consisted of a piece of ground about four yards in width, cleared of moss and dead leaves, and situated on a ridge. Across this cleared space were three thin branches, about one foot from the ground and bare of leaves. The birds hop to and fro from the branches to the ground whilst displaying their plumes. I also saw what Anthony said was the dancing-ground of *Diphyllodes magnifica*. It consisted of a rounded space in the scrub about three yards in diameter and cleared of moss and dead leaves.

Anthony tells me that the other species of the central division dance on the branches, but do not select any special tree for this purpose.

As regards the moulting-season of the male birds at the lower elevations—*P. raggiana, Ptilorhis, Cicinnurus, Diphyllodes*, and the Manucode—all those that we shot early in November were in full plumage. On coming to the same locality on our return journey in the beginning of December, all the males that we shot had without exception changed their plumage. All the male birds shot at the higher elevations were in full plumage, with exception of two young birds and two males of *Paradisornis rudolphi.*

As regards the calls of the Paradise-birds, the different species can only be approached by a knowledge of them. The birds are seldom seen, unless followed in this way, with the exception of *P. raggiana* in the low elevations. This species has a succession of loud notes which dominate the forest. *Lophorhina superba* has a shorter cry, but very harsh. *Parotia sexpennis* has a short sharp cry, which is almost exactly imitated by the natives, and it is thus easily approached. *Drepanornis albertisi* has several notes of a liquid quality, pleasant to hear. The cry of *Astrarchia stephaniæ* is a mere twittering. *Epimachus meyeri* has a loud deep cry, somewhat resembling the roll of a kettledrum. I have no distinct recollection of the call of the male *Paradisornis rudolphi,* but Anthony says that it resembles the note of a bell.

XX.—*On the Birds of the Alexandra District, North Territory of South Australia.* By Collingwood Ingram, F.Z.S., M.B.O.U.

(Plate IX.)

Although many collections of birds have been made in various parts of Australia during recent years, I think that I am right in saying that hitherto no ornithologist has ever visited the immense tract of land owned by the proprietors of the Alexandra station. This estate lies in the Northern Territory of South Australia and is, roughly speaking, situated about two hundred miles inland from the Gulf of Carpentaria in lat. 19° S. and long. 136° E. (See map, Plate IX.)

In the year 1905 my father, Sir William Ingram, arranged that Mr. W. Stalker, an experienced naturalist, should visit this locality with the object of making an exhaustive collection of its birds and mammals—a task which has occupied him up to the present time. The mammals were presented to the British Museum *, while the fine series of birds was handed over to me to work out.

In reviewing the collection in its entirety I was immediately struck by the exceptionally pale and grey coloration of many of the forms; in several instances this was so manifest that I have deemed it necessary to separate five of them as distinct geographical races (see Bull. B. O. C. xvi. p. 115). The bleached appearance of their plumage is doubtless due to the arid-desert-character of the environment, for similar effects are well known to be produced in many vertebrates inhabiting the desert-regions of the world.

As might be expected from the similar nature of the two parts of the continent, examples from Alexandra most nearly resemble those from North-western Australia, and it is, to my mind, apparent that the avifaunas of these two districts are very intimately connected.

In answer to my request for a description of the neighbourhood, Mr. Stalker writes to me as follows:—"Leaving the Queensland border and travelling towards Alexandra, the principal river-beds crossed (see map, Plate IX.) are the James, Lorne Creek, Rankine, Buchanan, and Playford. In flood-time the first three empty themselves into the Georgina, but are, for the greater part of the year, merely a series of water-holes often many miles apart. The timber is principally Corlibar and *Gedgea*. Between the James and the Lorne Creek there is a sandy desert some sixteen to twenty miles in width covered with various Gums, *Mulga* timber, grass, and *Spinifex*. The Buchanan and Playford unite about twenty miles from Alexandra and, by means of a series of swamps, reach Lake Silvester. It is only in particular years, however, that the water extends so far: in 1905 and 1906 it did not reach the junction. Running parallel to the Buchanan, and distant about a mile and a half, is a ridge of desert sandstone (?) about a hundred or a hundred and fifty feet above the plain. The slopes and flats are, for an average width of three-quarters of a mile, covered with reddish sand, where several varieties

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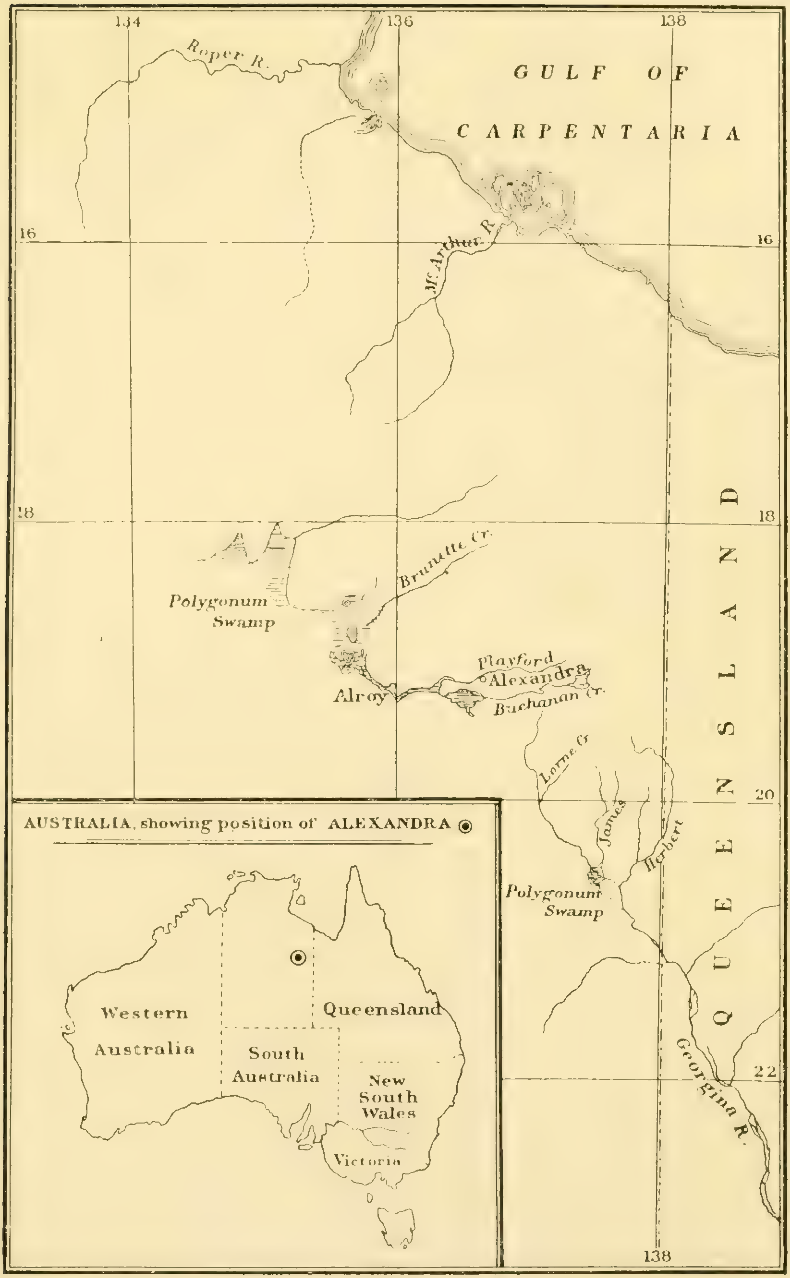
* See Mr. Oldfield Thomas's report on them, P. Z. S. 1906, p. 536.


134
136
138
Roper R.
GULF OF
CARPENTARIA
16
16
Mc Arthur R.
18
18
Brunette Cr.
Polygonum
Swamp
Playford
Alexandra
Alroy
Buchanan Cr.
Lorne Cr
James
Herbert
QUEENSLAND
20
Polygonum
Swamp
Georgina R.
22
138
AUSTRALIA, showing position of ALEXANDRA ⦿
Western
Australia
Queensland
South
Australia
New
South
Wales
Victoria

SKETCH MAP
of the
ALEXANDRA DISTRICT
NORTHERN TERRITORY

of Gums grow amongst the *Spinifex*. Most of the timber found on Alexandra grows in the 'desert.'

"A ridge, similar to the former in many ways but rather higher and much more extensive, is found to the north of the Playford. This is much wider and possesses one spring of permanent water. Travelling towards this range from the creek, a plain is crossed for about five miles; then comes about a mile of brown sand-loam, set hard and covered with Box and other small trees; succeeding this is a stretch of perhaps a mile or two of Turpentine bushes growing in loose soft sand. Many gullies run down from the range and flood out over small plains. It is on this flooded ground that the only large timber is to be found—principally White Gum and Blood-wood.

"Most of the birds, excepting those found on water, were shot on the outskirts of these deserts and along the banks of the small creeks running through them. As, however, the water seldom lasts more than a week or two in the sand, though rather longer in a few rock-holes, there was not much time to work the whole country. The ranges seem to extend from the Playford in a broken series right up to the main coastal range. It is rather curious that after leaving the Rankine no *Gedgea*-trees are met with until the Brunette is approached, a distance of about a hundred miles.

"On the Brunette the plains are broken by ridges of small pebbles, heaped up like old sea-beaches. There are many large clumps of *Gedgea*-timber there, and I am told that similar country extends right out to the telegraph-lines.

"A few miles south of Alroy is the edge of the Great Desert. This extends from the Rankine at the Polygonum swamp right past Alroy, probably to Tennant's Creek, and is timbered with small White Gums, Turpentine, and a variety of low trees. There appear to be none of any size; probably the frequent fires have something to do with this. I visited two lakes twenty-eight and forty miles from Alroy respectively; they were shallow depressions covered with trees. The water-mark was about seven feet above our camping-ground and there might have been about one foot of water left. These also seemed to be great breeding-places of water-fowl; there were many old nests amongst the branches of the trees; several species of Buzzards and the Kites were laying their eggs in May 1905 and even until August, but I saw no signs of any nest-building this year. A few small birds were found breeding during January on the flats of flooded country near the Playford, which had been particularly fortunate in the storms of rain which had fallen. The average rainfall here in twenty years works out at 16·50, but five of the winters only averaged 5·57, and this winter 6·54 at Alexandra, while it was much worse at Avon East and on the Brunette to the west."

I now give a list of the species represented in Mr. Stalker's collection, with the necessary references and remarks when required.

GEOPELIA TRANQUILLA.

Geopelia tranquilla Gould, P. Z. S. 1844, p. 56 (Liverpool plains and banks of the Namoi, New South Wales); Campbell, Nests & Eggs Austr. B. ii. p. 676 (1901); Hall, Emu, ii. p. 61 (Fitzroy River, N.W. Australia).

Geopelia placida Gould; Hartert, Nov. Zool. xii. p. 196 (Margaret River; Eureka; South Alligator River).

a. ♂ adult. Alexandra, Jan. 16, 1906. Iris dark red; feet reddish brown; bill black.

Compared with the series in the British Museum, the bird from Alexandra is distinctly smaller; its measurements are: wing 3·8, tail 4·2 in. The examples in the National Collection average: wing 4, tail 4·75.

GEOPELIA CUNEATA.

Geopelia cuneata (Lath.); Salvad. Cat. B. Brit. Mus. xxi. p. 462 (1893: N.W. Australia); Campbell, Nests & Eggs Austr. B. ii. p. 678 (1901); Hartert, Nov. Zool. xii. p. 196.

a, b, c. ♂ ♀ adult. Alexandra, Oct. 29, 1905. Bill black; feet reddish cream-coloured; iris red. "Colocucu."

d, e. ♂ ♀ adult. Alexandra, Dec. 8, 1905.

PHAPS CHALCOPTERA.

Phaps chalcoptera (Lath.); Salvad. Cat. B. Brit. Mus.

xxi. p. 526 (1893 : Port Essington); Campbell, Nests & Eggs Austr. B. ii. p. 680 (1901) ; Hartert, Nov. Zool. xii. p. 197.

No. 14. *a, b, c.* ♂ adult. Alexandra.

HISTRIOPHAPS HISTRIONICA.

Columba (*Peristera*) *histrionica* Gould, P. Z. S. 1840, p. 114 (plains of interior of Australia).

Histriophaps histrionica Campbell, Nests & Eggs Austr. B. ii. p. 684 (1901).

a, b. Adult. Alexandra.

LOPHOPHAPS LEUCOGASTER.

Lophophaps leucogaster Gould, Suppl. B. Austr. pl. 69 (1862) ; Salvad. Cat. B. Brit. Mus. xxi. p. 535 (1893 : Victoria River, N.W. Australia) ; Campbell, Nests & Eggs Austr. B. ii. p. 693 (1901).

No. 52. ♂ ♀ adult. Alexandra, June 1905. Bill and feet black ; iris orange.

OCYPHAPS LOPHOTES.

Columba lophotes Temm. Pl. Col. iv. pl. 142 (1823 : mountains of the interior of Australia).

Ocyphaps lophotes Campbell, Nests & Eggs Austr. B. ii. p. 695 (1901); Hall, Emu, ii. p. 61 (Fitzroy River); Hartert, Nov. Zool. xii. p. 198 (Mount Hatley; Soda Springs ; Margaret River ; Elvira River ; Avergne Station).

a. ♂ adult. Alexandra, Sept. 23, 1905. Iris orange ; feet dark ; bill black.

MICROTRIBONYX VENTRALIS.

Gallinula ventralis Gould, P. Z. S. 1836, p. 85 (Swan River, Australia).

Microtribonyx ventralis Sharpe, Cat. B. Brit. Mus. xxiii. p. 165 (1894) ; Campbell, Nests & Eggs Austr. B. ii. p. 752 (1901).

No. 97. ♂ ♀ adult. Alexandra, Dec. 5, 1905. Bill light blue, scarlet at base ; tarsi and feet scarlet and grass-green ; iris golden yellow. This species feeds on green grass-shoots.

PODICIPES NOVÆ-HOLLANDIÆ.

Podicipes novæ hollandiæ Grant, Cat. B. Brit. Mus. xxvi. p. 519 (1898: Port Essington and Mount Anderson); Campbell, Nests & Eggs Austr. B. ii. p. 1002 (1901).

Colymbus fluviatilis novæ hollandiæ Hartert, Nov. Zool. xii. p. 199 (Lyon River; South Alligator River).

No. 16. ♂ ♀ adult. Alexandra, May 1905. Bill black above, grey below; feet dark grey.

STERNA GRACILIS.

Sterna gracilis Gould, P. Z. S. 1845, p. 76.

Sterna dougalli Mont.; Saunders, Cat. B. Brit. Mus. xxv. p. 70 (1896); Campbell, Nests & Eggs Austr. B. ii. p. 834 (1901).

Sterna dougalli gracilis Hartert, Nov. Zool. xii. p. 199 (Bedout Island, N.W. Australia).

No. 102. ♀ adult. Alexandra, Dec. 9, 1905. Bill dark red; feet scarlet.

This specimen has puzzled me considerably and it is only with hesitation, while awaiting further evidence, that I name it, after Gould, *Sterna gracilis*. It appears to be nearly adult, but is unusually small, the measurements being: culmen 1·3, wing 8·3, tarsus ·8 in. The tail is probably undeveloped, being very short indeed and only bluntly forked. The most striking difference is in the small bill, which, even in its present dried state, may be seen to be wholly of a dark red colour (as Mr. Stalker also observes on the label), and not black or partly black as in the typical bird. Another important difference is shown in the primary-feathers; these are certainly not completely margined with white on their inner webs and, by the fourth and fifth, the light patch on the inner side becomes almost obsolete, being only apparent at the base of the feather.

Should this example prove to be *S. gracilis*, it is most surprising to find it so many miles inland, for, as Mr. Saunders points out, this group of Terns is essentially maritime. Mr. Stalker notes that this form is reputed to breed on the Brunette Creek.

ERYTHROGONYS CINCTUS.

Erythrogonys cinctus Gould, P. Z. S. 1837, p. 155 (New South Wales); Campbell, Nests & Eggs Austr. B. ii. p. 780 (1901); Hall, Emu, ii. p. 64 (Fitzroy River); Hartert, Nov. Zool. xii. p. 200 (South Alligator River).

a. ♀ adult. Buff Hole, Alexandra, May 1905. Bill—tip and culminal ridge black, mandible orange at the base; feet black; iris orange.

b. Adult. Alexandra.

OCHTHODROMUS VEREDUS.

Ochthodromus veredus (Gould); Campbell, Nests & Eggs Austr. B. ii. p. 791 (1901); Hall, Emu, ii. p. 65 (Fitzroy River); Hartert, Nov. Zool. xii. p. 201 (South Alligator River).

No. 94. ♂ adult. Alexandra, Oct. 1905. Bill black; feet reddish brown.

ÆGIALITIS MELANOPS.

Ægialitis melanops (Vieill.); Sharpe, Cat. B. Brit. Mus. xxiv. p. 300 (1896: Derby, N.W. Australia); Campbell, Nests & Eggs Austr. B. ii. p. 795 (1901); Hartert, Nov. Zool. xii. p. 201 (South Alligator River).

No. 20. *a.* ♂ adult. Alexandra, May 1905. Bill orange at the base, black at the tip; feet dark yellowish brown; iris brown.

No. 20. *b, c, d.* ♂ ♀ adult. Alexandra, Dec. 11, 1905.

HIMANTOPUS LEUCOCEPHALUS.

Himantopus leucocephalus Gould; Campbell, Nests & Eggs Austr. B. ii. p. 801 (1901); Hall, Emu, ii. p. 65 (Fitzroy River); Hartert, Nov. Zool. xii. p. 201 (South Alligator River).

No. 105. *a, b.* ♂ adult. Alexandra, Jan. 2, 1905. Bill black; feet pink; iris dark red.

RECURVIROSTRA NOVÆ-HOLLANDIÆ.

Recurvirostra novæhollandiæ Vieill.; Campbell, Nests & Eggs Austr. B. ii. p. 804 (1901).

No. 2. ♀ adult. Alexandra, May 1905. Bill and feet black; iris brown.

STILTIA ISABELLA.

Stiltia isabella (Vieill.); Campbell, Nests & Eggs Austr. B. ii. p. 769 (1901); Hall, Emu, ii. p. 64 (Fitzroy River); Hartert, Nov. Zool. xii. p. 202 (South Alligator River).

No. 96. *a, b.* ♂; *c, d.* ♀ adult. Alexandra, Dec. 5–10, 1905. Bill scarlet and black; feet dark brown; iris brown.

GLAREOLA ORIENTALIS.

Glareola orientalis Leach; Campbell, Nests & Eggs Austr. B. ii. p. 771 (1901); Hall, Emu, ii. p. 64 (Fitzroy River).

No. 95. *a.* ♂; *b, c.* ♀ adult. Alexandra, Dec. 8–15, 1905. Bill black; feet dark brown; iris dark brown.

BURHINUS GRALLARIUS.

Burhinus grallarius (Lath.); Sharpe, Cat. B. Brit. Mus. xxiv. p. 18 (1896); Hartert, Nov. Zool. xii. p. 202 (Shaw River; Union; South Alligator River).

Burhinus (*Œdicnemus*) *grallarius* Campbell, Nests & Eggs Austr. B. ii. p. 766 (1901).

No. 89. ♀ adult. Alexandra, Nov. 7, 1905. Feet dirty yellow; bill black.

PLATIBIS FLAVIPES.

Platibis flavipes (Gould); Sharpe, Cat. B. Brit. Mus. xxvi. p. 51 (1898); Campbell, Nests & Eggs Austr. B. ii. p. 948 (1901).

a. ♀ adult. Buff Hole, Alexandra, July 1905. Feet pale yellow; iris white.

HERODIAS TIMORIENSIS.

Herodias timoriensis (Cuv.); Campbell, Nests & Eggs Austr. B. ii. p. 952 (1901).

Herodias alba timoriensis Hartert, Nov. Zool. xii. p. 204 (South Alligator River).

a. ♂ adult. Alexandra, Dec. 16, 1905. Bill light orange; feet black.

NOTOPHOYX PACIFICA.

Notophoyx pacifica (Lath.); Sharpe, Cat. B. Brit. Mus. xxvi. p. 111 (1898); Campbell, Nests & Eggs Austr. B. ii.

p. 955 (1901); Hall, Emu, ii. p. 67 (Fitzroy River); Hartert, Nov. Zool. xii. p. 204 (South Alligator River).

a. ♂ adult. Alexandra, Oct. 27, 1905. Bill and feet black.

DENDROCYCNA EYTONI.

Dendrocycna eytoni (Eyton); Salvad. Cat. B. Brit. Mus. xxvii. p. 165 (1895: Port Essington); Campbell, Nests & Eggs Austr. B. ii. p. 1028 (1901).

No. 67. *a, b.* ♀ adult. Alroy, Alexandra, Aug. 1905. Bill blue, crossed by a band of brick-red; feet reddish brown; iris golden orange.

No. 67. *c.* ♂ adult. Playford, Alexandra, Sept. 1905. Bill dark blue, reddish brown below, blue at the tip; feet light brown; iris orange.

ANAS SUPERCILIOSA.

Anas superciliosa Gm.; Campbell, Nests & Eggs Austr. B. ii. p. 1033 (1901); Hartert, Nov. Zool. xii. p. 206 (South Alligator River; Mary River; Nullagine Road).

a. ♂ adult. Alexandra. Bill and feet black; iris brown.

NETTIUM GIBBERIFRONS.

Nettium gibberifrons S. Müll.; Salvad. Cat. B. Brit. Mus. xxvii. p. 254, pl. ii. fig. 2 (1895); Campbell, Nests & Eggs Austr. B. ii. p. 1039 (1901).

Anas gibberifrons, Hartert, Nov. Zool. xii. p. 206.

No. 13. ♂ adult. Alexandra, May 1905. Bill and feet black; iris brown.

MALACORHYNCHUS MEMBRANACEUS.

Malacorhynchus memlranaceus (Lath.); Salvad. Cat. B. Brit. Mus. xxvii. p. 319 (1895); Campbell, Nests & Eggs Austr. B. ii. p. 1046 (1901).

a, b. Adult. Alexandra.

ÆTHYIA AUSTRALIS.

Nyroca australis Gould, MSS.; Salvad. Cat. B. Brit. Mus. xxvii. p. 350 (1895); Campbell, Nests & Eggs Austr. B. ii. p. 1050 (1901); Hartert, Nov. Zool. xii. p. 206.

No. 51. ♂ adult. Alexandra, July 9, 1905. Bill and feet black; iris white.

PHALACROCORAX SULCIROSTRIS.

Phalacrocorax sulcirostris (Brandt); Campbell, Nests & Eggs Austr. B. ii. p. 972 (1901); Hall, Emu, ii. p. 68 (Fitzroy River); Hartert, Nov. Zool. xii. p. 206 (South Alligator River).

a. ♂ adult. Alexandra, May 1905. Bill black to brown; feet black.

No. 68. ♀ adult. Alexandra, Sept. 1905. Bill and feet black.

PHALACROCORAX HYPOLEUCUS.

Phalacrocorax hypoleucus (Brandt); Campbell, Nests & Eggs Austr. B. ii. p. 975 (1901); Hartert, Nov. Zool. xii. p. 206 (South Alligator River).

No. 66. ♀ adult. Alexandra, Aug. 1905. Bill creamy white; feet black.

PLOTUS NOVÆ-HOLLANDIÆ.

Plotus novæ hollandiæ Gould; Campbell, Nests & Eggs Austr. B. ii. p. 979 (1901); Hartert, Nov. Zool. xii. p. 206 (South Alligator River; Nullagine Road).

No. 13. ♀ imm. Alexandra, Oct. 15, 1905. Bill bluish grey above, yellowish grey below; feet creamy yellow; iris pale yellow.

CIRCUS ASSIMILIS.

Circus assimilis Jard. & Selby, Illustr. Orn. pl. 51 (1828: the neighbourhood of Sydney); Sharpe, Cat. B. Brit. Mus. i. p 63 (1874); Campbell, Nest & Eggs Austr. B. i. p. 1 (1901).

No. 50. ♂ adult. Alexandra.

No. 65. ♀ imm. Alroy, Alexandra, Aug. 1905. Bill black; feet yellow; iris lemon-yellow.

ASTUR FASCIATUS.

Astur fasciatus Vig. & Horsf. Trans. Linn. Soc. xv. p. 181 (1826: Australia); Hartert, Nov. Zool. xii. p. 207 (South Alligator River).

Astur approximans Vig. & Horsf. : Campbell, Nests & Eggs Austr. B. i. p. 6 (1901) ; Hall, Emu, ii. p. 63 (Fitzroy River).

a. ♂ adult. Buff Hole, Alexandra, May 1905. Bill black ; claws jet-black ; iris golden yellow.

Three lizards and a Java Sparrow were found in the stomach.

ACCIPITER CIRRHOCEPHALUS.

Accipiter cirrhocephalus (Vieill.) ; Sharpe, Cat. B. Brit. Mus. i. p. 141 (1874 : Victoria River, N. Australia) ; Campbell, Nests & Eggs Austr. B. i. p. 9 (1901) ; Hall, Emu, ii. p. 63 (Fitzroy River) ; Hartert, Nov. Zool. xii. p. 208 (Brock's Creek ; South Alligator River).

a. ♂ adult. Alroy, Alexandra, Aug. 1, 1905. Bill black ; feet orange ; iris lemon-coloured.

UROAËTUS AUDAX.

Uroaëtus audax (Lath.) ; Sharpe, Cat. B. Brit. Mus. i. p. 231 (1874) ; Campbell, Nests & Eggs Austr. B. i. p. 11 (1901).

a. ♂ adult. Alexandra, June 15, 1905. Bill greyish blue at the tip ; feet dirty white ; iris golden brown.

b. ♀ adult. Alexandra, Oct. 26, 1905. Bill yellowish blue ; iris yellow.

HALIASTUR SPHENURUS.

Haliastur sphenurus (Vieill.) ; Sharpe, Cat. B. Brit. Mus. i. p. 316 (1874 : Port Essington) ; Campbell, Nests & Eggs Austr. B. i. p. 20 (1901) ; Hartert, Nov. Zool. xii. p. 208 (South Alligator River).

a, b. ♀ pull. Alexandra, May 1905. Bill black ; feet yellow ; iris brown.

c. ♀ imm. Buff Hole, July 1905. Bill slate-brown ; feet white ; iris hazel-brown.

d, e. ♂ imm. Alexandra, June 1905. Bill iron-grey ; feet olive-white ; iris dark brown.

Egg. No. 6. April 26.

Egg. No. 10. July 20.

Eggs. Nos. 1, 3, 7. (These eggs have no dates.)

MILVUS AFFINIS.

Milvus affinis Gould; Sharpe, Cat. B. Brit. Mus. i. p 324 (1874: N.W. Australia); Campbell, Nests & Eggs Austr. B. i. p. 22 (1901); Hall, Emu, ii. p. 63 (Fitzroy River).

a. ♂ adult. Alexandra, June 1905. Bill and feet black.

b. ♂ adult. Alexandra, Dec. 19, 1905. Feet yellow; iris brown.

c. ♀ adult. Alexandra. Jan. 8, 1906.

Eggs. Nos. 4, 5, 11.

GYPOICTINIA MELANOSTERNUM.

Gypoictinia melanosterna (Gould); Sharpe, Cat. B. Brit. Mus. i. p. 335 (1874); Campbell, Nests & Eggs Austr. B. i. p. 25 (1901).

No. 72. *a–d.* ♂ adult and nestlings. Alexandra, Sept. 1905. Bill bluish grey; feet grey, claws blue; iris orange to pale yellow.

e. ♀ adult. Alexandra, Nov. 1, 1905. Bill blue above, yellow below; feet dirty white; iris hazel.

The two newly-hatched nestlings of this species accompanying the male example killed at Alexandra in Sept. 1905 prove that the birds were breeding there at that period. As this Kite is a rare species, only found in the interior of the continent, it is probable that the nestlings have not previously been described. They are uniformly covered with loose, buff-coloured down, which shades into very dark sooty-brown on the rump and round the eyes, the lores being almost black.

ELANUS AXILLARIS.

Elanus axillaris (Lath.); Sharpe, Cat. B. Brit. Mus. i. p. 338 (1874: Port Albany); Campbell, Nests & Eggs Austr. B. i. p. 27 (1901); Hartert, Nov. Zool. xii. p. 208 (South Alligator River).

No. 56. ♀ adult. Alexandra, June 1905. Bill black; feet pale yellow; iris lemon-yellow.

HIERACIDEA ORIENTALIS.

Hieracidea orientalis (Schl.); Sharpe, Cat. B. Brit. Mus. i. p. 422 (1874).

Ieracidea orientalis Hartert, Nov. Zool. xii. p. 209 (South Alligator River).

The four examples of this genus from Alexandra differ considerably from each other. One is the typical brown *H. orientalis*; two undoubtedly belong to the rufous form known as *H. berigora*; while the fourth appears to be intermediate between them, being strongly inclined to rufous above but having the brown thighs of *H. orientalis*. This supports Dr. Hartert's supposition that the two phases belong to the same species, and that they are not separate geographical races (Nov. Zool. vol. xii. p. 209). Elsey also found the two phases inhabiting the same area. Mr. Stalker observes that this Hawk generally feeds on lizards.

No. 19. ♂. Alexandra, June 1905. Bill pale to dark blue; feet bluish white; iris brown.

No. 63. ♂. Alexandra, July 30, 1905. Bill and feet blue; iris golden brown.

HIERACIDEA BERIGORA.

Hieracidea berigora (Vig. & Horsf.); Sharpe, Cat. B. Brit. Mus. i. p. 41 (1874).

Ieracidea berigora Hartert, Nov. Zool. xii. p. 208 (Nullagine; Argyle Station; Condon Road).

No. 51. ♂ adult. Alexandra, June 1905. Bill bluish, shading to black at the tip; feet pale yellow; iris bright yellow.

CERCHNEIS CENCHROIDES.

Cerchneis cenchroides (Vig. & Horsf.); Campbell, Nests & Eggs Austr. B. i. p. 38 (1901); Hartert, Nov. Zool. xii. p. 209 (Eureka River).

No. 55. ♂ adult. Alexandra, June 1905. Bill bluish at the base, black at the tip; feet bright yellow; iris brown.

a. Adult. Alexandra.

NINOX OCELLATA.

Ninox ocellata (Hombr. & Jacq.); Sharpe, Cat. B. Brit. Mus. ii. p. 170 (1875: Port Essington; N.W. Australia).

Ninox boobook Hall, Emu, ii. p. 63 (Fitzroy River).

Ninox boobook ocellata Campbell, Nests & Eggs Austr. B. i. p. 45 (1901); Hartert, Nov. Zool. xii. p. 210.

a, b. Adult. Alexandra.

c. ♂ adult. Alexandra, April 1905. Bill black; feet dirty brown; iris brown.

Strix delicatula.

Strix flammea delicatula Gould; Campbell, Nests & Eggs Austr. B. i. p. 51 (1901); Hartert, Nov. Zool. xii. p. 211.

No. 9. Adult. Alexandra, May 1905. Bill dirty white; feet white; iris pale grey.

No. 99. ♂ ♀ adult. Alexandra, Nov. and Dec. 1905. Bill creamy yellow; feet dirty white; iris brown.

Cacatua gymnopis.

Cacatua gymnopis Sclater; Campbell, Nests & Eggs Austr. B. ii. p. 613 (1901); Hall, Emu, ii. p. 62 (Fitzroy River); Hartert, Nov. Zool. xii. p. 211.

One adult example of this species from Alexandra.

Cacatua roseicapilla.

Cacatua roseicapilla Vieill.; Salvad. Cat. B. Brit. Mus. xx. p. 132 (1989: N.W. Australia); Campbell, Nests & Eggs Austr. B. ii. p. 617 (1901); Hartert, Nov. Zool. xii. p. 212.

No. 15. Adult. Alexandra, May 1905. Bill bluish, white at the tip; feet black; iris red.

Calopsittacus novæ-hollandiæ.

Calopsittacus novæ hollandiæ (Gm.); Salvad. Cat. B. Brit. Mus. xx. p. 135 (1891: N.W. Australia); Campbell, Nests & Eggs Austr. B. ii. p. 621 (1901).

Calopsitta novæ hollandiæ Hartert, Nov. Zool. xii. p. 212.

No. 36. ♀ imm. Alexandra, May 1905. Bill bluish grey; feet black.

a, b. Adult. Alexandra.

No. 36. ♂ adult. Alexandra, Nov. 2, 1905. Bill purple; feet black; iris brown.

MELOPSITTACUS UNDULATUS.

Melopsittacus undulatus (Shaw & Nodd.); Salvad. Cat. B. Brit. Mus. xx. p. 594 (1891); Campbell, Nests & Eggs Austr. B. ii. p. 656 (1901); Hall, Emu, ii. p. 62; Hartert, Nov. Zool. xii. p. 214.

Five adult examples from Alexandra.

ÆGOTHELES NOVÆ-HOLLANDIÆ.

Ægotheles leucogaster Gould, P. Z. S. 1844, p. 106 (Port Essington).

Ægotheles novæ hollandiæ (Lath.); Hartert, Cat. B. Brit. Mus. xvi. p. 651 (1892); Campbell, Nests & Eggs Austr. B. ii. p. 542 (1901).

Ægotheles novæ hollandiæ (? *leucogaster*) Hartert, Nov. Zool. xii. p. 216.

a, b. ♂ ♀ adult. Alexandra Station, July 1905. Bill black; feet yellowish brown; iris clear brown.

One of the two skins is interesting from the fact that the plumage shews the rufous phase. The head, back, and wings are washed with rusty brown instead of being grey, as in the normal bird. The white of the under parts is also tinged with fulvous. The tail is barred with unusually narrow lines, the ground-colour being rufous brown.

One of the labels bears the note that "these birds make their nests in hollow trees," and shews that they breed in the vicinity of Alexandra.

HALCYON PYRRHOPYGIUS.

Halcyon pyrrhopygia Gould, P. Z. S. 1840, p. 113 (interior of New South Wales); Hartert, Nov. Zool. xii. p. 215.

Halcyon pyrrhopygius Campbell, Nests & Eggs Austr. B. ii. p. 557 (1901).

One specimen from Alexandra.

MEROPS ORNATUS.

Merops ornatus Lath.; Campbell, Nests & Eggs Austr. B. ii. p. 545 (1901); Hall, Emu, ii. p. 51 (Fitzroy River); Hartert, Nov. Zool. xii. p. 215 (Brock's Creek).

a, b. ♂ ♀ adult. Alexandra, Oct. 15, 1905. Bill and feet black; iris dark red.

c. ♂ adult. Alexandra, Nov. 1, 1905.

These birds did not appear until far on in October. Contents of stomach, large flies.

CUCULUS VARIEGATUS.

Cuculus variegatus Vieill.; Hartert, Nov. Zool. xii. p. 217.

a. ♂ adult. Alexandra, Dec. 7, 1905. Bill black; feet light brown; iris brown. "Whorolo." Feeds on caterpillars.

CHALCOCOCCYX PLAGOSUS.

Chalcococcyx plagosus Shelley, Cat. B. Brit. Mus. xix. p. 297 (1891); Campbell, Nests & Eggs Austr. B. ii. p. 582 (1901).

No. 103. ♂ juv. Alexandra, Dec. 25, 1905. Bill and feet black; iris brown. Contents of stomach, insects.

SCYTHROPS NOVÆ-HOLLANDIÆ.

Scythrops novæ hollandiæ Lath.; Campbell, Nests & Eggs Austr. B. ii. p. 588 (1901); Hartert, Nov. Zool. xii. p. 219 (Fitzroy River).

No. 107. ♂ adult. Alexandra, Jan. 21, 1906. Bill dark blue to cream-coloured; feet pale grey; iris reddish brown.

MICRŒCA PALLIDA.

Micrœca pallida De Vis, Proc. R. Soc. Queensland, i. p. 159 (1884).

a. ♀ adult. Alexandra, April 1905.

No. 39. ♀ adult. Alexandra, May 1905. Iris brown; feet and bill black.

The measurements of these two specimens slightly exceed those given by North in his description of this small representative form of *M. fascinans*.

The food consists of insects. This species catches flies on the wing.

PETRŒCA GOODENOVII.

Petrœca goodenovii (Vig. & Horsf.); Sharpe, Cat. B. Brit.

Mus. iv. p. 171 (1879); Campbell, Nests & Eggs Austr. B. i. p. 143 (1901).

No. 44. Imm. Alexandra, April 1905. Bill and feet black.

No. 25. ♂ ♀ adult. Alexandra, May 1905. Bill and feet black; iris brown.

a. ♀ adult. Alexandra, July 29, 1905. Bill blackish brown; feet black; iris dark brown.

These do not differ much from typical examples, but are, if anything, paler on the back; a fact specially noticeable in specimen No. 25, ♀, which is probably an immature bird, as there is practically no red on the forehead.

This district seems to be the northern limit of the species in South Australia. Campbell gives its distribution as South Queensland, New South Wales, Victoria, South and Western Australia. However, it is reputed to have occurred as far north as the neighbourhood of the Fitzroy River (N.W. Australia).

MELANODRYAS PICATA.

Petrœca picata (Gould); Sharpe, Cat. B. Brit. Mus. iv. p. 174 (1879); Hall, Emu, i. p. 92 (Fitzroy River).

Melanodryas bicolor picata Campbell, Nests & Eggs. Austr. B. i. p. 146 (1901); Hartert, Nov. Zool. xii. p. 220.

No. 24. *a, b.* Adult. Alexandra, May 1905. Bill and feet black; iris brown.

No. 34. ♀ adult. Alexandra, May 1905.

a. ♀ adult. Alexandra, Nov. 1905.

Both the males agree fairly well with those in the British Museum, but the females are very much greyer and shew the tendency—apparent throughout the greater part of the collection—towards the formation of a paler race.

SMICRORNIS FLAVESCENS.

Smicrornis flavescens Gould, P. Z. S. 1842, p. 134 (Port Essington); Sharpe, Cat. B. Brit. Mus. iv. p. 210 (1879: Gilbert River); Hall, Emu, i. p. 105 (Fitzroy River); Campbell, Nests & Eggs Austr. B. i. p. 154 (1901); Hartert, Nov. Zool. xii. p. 220.

a. ♀ adult. Alexandra, April 1905. Bill greyish brown; feet pale brown ; iris yellow.

b. Adult. Alexandra.

In both specimens the backs are of a lighter shade and of a more yellowish hue than in those in the National Collection; they are also considerably brighter on the under surface of the body, that part being bright canary-yellow instead of sulphur-yellow.

Having such a limited series for comparison (there are only five examples in the British Museum), I do not think it justifiable to separate these birds from Gould's *Smicrornis flavescens*, but the difference is very marked and worthy of attention.

RHIPIDURA TRICOLOR.

Rhipidura tricolor (Vieill.); Sharpe, Cat. B. Brit. Mus. iv. p. 339 (1879); Campbell, Nests & Eggs Austr. B. i. p. 116 (1901).

Rhipidura tricolor motacilloides Hartert, Nov. Zool. xii. p. 221 (Flora Valley; Soda Springs; Eureka; South Alligator River).

a. ♂ adult. Alexandra, Nov. 5, 1905. Bill and feet black ; iris brown.

RHIPIDURA ALBISCAPA.

Rhipidura albiscapa Gould, P. Z. S. 1840, p. 113 (Tasmania and Southern coast of South Australia); Sharpe, Cat. B. Brit. Mus. iv. p. 310 (1879); Campbell, Nests & Eggs Austr. B. i. p. 108 (1901).

a. Adult. Alexandra.

This example is noticeably paler and greyer than those labelled *R. albiscapa* in the British Museum. Unfortunately the head has been accidentally severed from the body at a point where the black band ought to be shown on the lower throat, so my specimen is rather difficult to determine with certainty; it may possibly belong to the closely allied species *R. preissi* Cabanis.

SISURA NANA.

Seisura nana Gould, Ann. & Mag. (4) vi. p. 224 (1870:

Northern Australia); Hall, Emu, i. p. 92 (Fitzroy River); Campbell, Nests & Eggs Austr. B. i. p. 126 (1901); Hartert, Nov. Zool. xii. p. 223.

No. 31. ♀ adult. Alexandra, May 1905. Bill purplish black; feet black; iris brown.

No. 31. ♂ adult. Alexandra, Oct. 31, 1905.

In both examples the breast is strongly washed with buff.

GRAUCALUS MELANOPS.

Graucalus melanops (Lath.): Sharpe, Cat. B. Brit. Mus. iv. p. 30 (1879); Hall, Emu, i. p. 106 (Fitzroy River); Campbell, Nests & Eggs Austr. B. i. p. 96 (1901); Hartert, Nov. Zool. xii. p. 224.

No. 53. [♀] adult. Alexandra, June 1905. Bill and feet black; iris pale yellow.

a. ♂ adult. Alexandra, Nov. 8, 1905. "Cogow."

b. ♂ adult. „ Dec. 7, 1905. Iris brown.

LALAGE TRICOLOR.

Lalage tricolor (Swains.): Sharpe, Cat. B. Brit. Mus. iv. p. 93 (1879: North-west Australia); Campbell, Nests & Eggs Austr. B. i. p. 103 (1901); Hartert, Nov. Zool. xii. p. 225 (Condon Road; Brock's Creek, Northern Territory; South Alligator River).

No. 14. ♀ adult. Alexandra, August 1905. Bill and feet black; iris brown.

No. 69. *a, b, c*. ♂; *d*. ♀ adult. Alexandra, September and December 1905.

POMATORHINUS RUBECULA.

Pomatorhinus rubeculus Gould, P. Z. S. 1839, p. 144 (North-west coast of Australia); Sharpe, Cat. B. Brit. Mus. vii. p. 421 (1883: Victoria River, N.W. Australia; Port Essington); Campbell, Nests & Eggs Austr. B. i. p. 274 (1901); Hartert, Nov. Zool. xii. p. 225 (Coongan River, N.W. Australia; Eureka; South Alligator River).

a, b, c. ♀ adult. Alexandra, July 1905. Bill and feet black; iris pale brown.

CINCLORHAMPHUS RUFESCENS.

Cinclorhamphus rufescens (Vig. & Horsf.); Campbell, Nests & Eggs Austr. B. i. p. 276 (1901); Hall, Emu, i. p. 109 (Fitzroy River); Hartert, Nov. Zool. xii. p. 225 (Behn River, E. Kimberley; Nullagine Road; Glencoe Station, Northern Territory; Argyle Station, E. Kimberley; Ord River, W. Australia).

No. 30. ♂ adult. Alexandra, May 1905. Bill dark brown; feet pale brown; iris brown.

No. 106. ♂ adult. Alexandra, Jan. 2, 20, 1906. Bill and feet dark brown; iris hazel.

This species flies singing from tree to tree like a Tree-Pipit.

On the label, dated Jan. 20th, 1906, Mr. Stalker remarks that he found a "nest in the bottom of a grass tuft."

CINCLORHAMPHUS CRURALIS.

Cinclorhamphus cruralis (Vig. & Horsf.); Campbell, Nests & Eggs Austr. B. i. p. 275 (1901); Hall, Emu, i. p. 109 (Fitzroy River); Hartert, Nov. Zool. xii. p. 225 (Hall's Creek Road).

No. 40. ♀ adult. Alexandra, May 1905.

EPHTHIANURA TRICOLOR.

Ephthianura tricolor Gould; Sharpe, Cat. B. Brit. Mus. vii. p. 667 (1883: N.W. Australia and Cape York); Campbell, Nests & Eggs Austr. B. i. p. 284 (1901); Hall, Emu, ii. p. 52 (Fitzroy River); Hartert, Nov. Zool. xii. p. 227 (Soda Spring, Kimberley).

a. ♀ adult. Alexandra, July 11, 1905. Bill and feet black; iris dull pale yellow.

b. Imm. Alexandra.

c, d. ♂ adult. Alexandra, Dec. 17, 1905. Iris white.

EPHTHIANURA AURIFRONS.

Ephthianura aurifrons Gould, P. Z. S. 1837, p. 148 (New South Wales); Campbell, Nests & Eggs Austr. B. i. p. 285 (1901) (N.W. Australia).

a, b. ♂; *c, d.* ♀ adult. Alexandra, May 1905. Bill black to grey; feet black; iris bright copper.

This species appears to be rare in the North and in N.W. Australia.

Although these skins have a bleached appearance and are pale in coloration, the difference is not sufficiently pronounced to warrant their separation as a subspecies. They merely represent a pale form of the typical *E. aurifrons*.

CISTICOLA EXILIS.

Cisticola exilis (Vig. & Horsf.): Sharpe, Cat. B. Brit. Mus. vii. p. 269 (1883); Hartert, Nov. Zool. vii. p. 227 (Ord River Station; Derby; South Alligator River; Eureka).

a. ♀ ad. Alexandra, July 24, 1905. Bill pale brown; feet pale yellowish brown; iris dull yellow.

The example from Alexandra varies so markedly from any in the large series of *C. exilis* at the British Museum that it is almost worthy of separation as a subspecies; had I more than one skin at my disposal I would unhesitatingly give this bird a new name, for it appears to me to be a very distinct geographical race. It differs from *C. exilis* in being much paler in plumage throughout; the head and mantle are very light greyish buff, streaked with dusky brown, this pale coloration being especially noticeable on the scapulars and wing-coverts, which have a very hoary appearance; the nape and rump are faintly washed with tawny. In the typical *C. exilis* all these parts are much darker and browner. The under parts are white and only tinged with buff on the flanks.

Mr. North mentions (Nests & Eggs Austr. B. p. 258) having examined a similarly light-plumaged example procured at Derby, N.W. Australia; he may possibly refer to the male of my pale race: he describes it as follows:—"has the head and under surface almost white, the former being slightly washed with golden buff, which is more pronounced on the forehead; the upper surface, wings, and tail are correspondingly paler than the typical examples of *C. exilis*, and only the feathers on the upper portion of the back have brown centres: wing 1·9 inches."

The same author states that he has never met with this species very far inland, its occurrence in the Alexandra district, two hundred miles from the coast, is therefore interesting.

MALURUS ASSIMILIS.

Malurus assimilis North, Victorian Naturalist, xviii. p. 29 (1901).

No. 32. ♀ adult. Alexandra, May 1905. Bill golden brown; feet black; iris brown.

No. 77. *a, b.* ♂ ♀ adult. Alexandra, Oct. 12, 1905. Bill and feet black; iris brown.

No. 32. *c.* ♂ adult. Alexandra, Dec. 20, 1905.

Generally found in the dense lignum around the edges of water-holes.

MALURUS DORSALIS.

Malurus dorsalis (Lewin); Campbell, Nests & Eggs Austr. B. i. p. 179 (1901); Hall, Emu, i. p. 89 (Fitzroy River); Hartert, Nov. Zool. xii. p. 223 (Derby; Brock's Creek; Mount Anderson; Eureka).

a. ♂ imm. Alexandra, Dec. 12, 1905. Bill dark brown; feet light brown; iris brown.

An immature male, just changing into full adult plumage.

ARTAMUS MINOR.

Artamus minor Vieill.; Campbell, Nests & Eggs Austr. B. i. p. 474 (1901); Hall, Emu, ii. p. 59 (Fitzroy River); Hartert, Nov. Zool. xii. p. 240 (Nellie Creek; Eureka; Hall's Creek).

No. 76. ♀ adult. Alexandra, Oct. 16, 1905. Bill blue, darker at the tip; feet black; iris brown.

a, b. ♂ ♀ adult et imm. Alexandra, Jan. 1906. Bill reddish brown, tip blue; feet black; iris brown.

In both the adult examples the brown of the head and mantle is less intense than that of the typical bird, and these parts have a faded appearance and a more bistre hue. The under parts are also many shades paler and are brighter and more russet in colour. The only specimen in the British Museum approaching those from Alexandra is from North-western Australia.

ARTAMUS GRACILIS.

Artamus gracilis Ingram, Bull. B. O. C. xvi. p. 115 (July 10, 1906).

Similar to *A. personatus*, but much more ashy in its general colour, the rump and upper tail-coverts being of a purer grey than the back and scapulars, which are almost uniform in colour with the head, and not dusky as in *A. personatus*. Total length 7·3 inches, culmen ·8, wing 4·7, tail 3·3, tarsus ·8.

a, b. Adult. Alexandra.

No. 108. *c, d.* ♂ ♀ adult. Alexandra, Jan. 16, 1906. Bill blue at the base, black at the tip; feet dark blue; iris brown.

The nest is placed in the fork of a branch; it is composed of grass and roots and is generally well concealed.

An adult male marked *c* more nearly approaches the typical *Artamus personatus* than the specimens sent with the first part of the collection, from which I described *A. gracilis*. However, in the main, it differs noticeably from any in the series at the British Museum, being lighter and of a more vinaceous-pink on the under parts, and I think that I am still justified in separating this form as a distinct species.

ARTAMUS FLORENCIÆ.

Artamus florenciæ Ingram, Bull. B. O. C. xvi. p. 115 (July 10, 1906).

Similar to *A. melanops*, but with the black under tail-coverts much more broadly tipped with white. General colour uniformly paler and more ashy than in *A. melanops*, in which species the back is browner. The under surface is also conspicuously paler, being of a clear pearl-grey instead of drab. Total length 7·3 inches, culmen ·8, wing 4·8, tail 3, tarsus ·85.

a. ♀ adult. Alexandra, April 1905. Bill black at the tip, pale blue at the base; feet black; iris blue.

b. ♀ adult. Alexandra, July 1905. Iris pale blue, shading into white.

c. Adult. Alexandra.

ARTAMUS PHÆUS.

Artamus phæus Ingram, Bull. B. O. C. xvi. p. 115 (July 10, 1906).

Similar to *A. superciliosus*, but the maroon of the under parts is much duller in colour and of a vinaceous tint, instead of the rich chestnut of the above-mentioned bird. The under tail-coverts are also less bright and of a lighter shade. In the female the pale coloration of the under parts is especially noticeable. Total length 7·2 inches, culmen ·8, wing 4·8, tail 3·3, tarsus ·8.

No. 28. *a, b.* ♂; *c.* ♀ adult. Alexandra, May 1905. Bill bluish, paler towards the base; feet black.

ARTAMUS PARVIROSTRIS.

Artamus leucorhynchus parvirostris Hartert, Nov. Zool. vi. p. 424 (1899: Cape York).

No. 85. ♀ adult. Alexandra Spring, Oct. 30, 1905. Bill blue; feet blue; iris blue.

GRALLINA PICATA.

Grallina picata (Lath.); Campbell, Nests & Eggs Austr. B. i. p. 87 (1901); Hall, Emu, ii. p. 53 (Fitzroy River); Hartert, Nov. Zool. xii. p. 227 (Nullagine; Hall's Creek Road; Eureka; Alligator River; Mary River).

No. 37. ♀ adult. Alexandra, May 1905. Bill pale yellow; feet black.

a. Adult. Alexandra.

b. ♂ adult. Alexandra, Dec. 10, 1905. Bill pale yellow, culminal ridge black; iris brown.

CRACTICUS PICATUS.

Cracticus picatus Gould, P. Z. S. 1848, p. 40 (Northern Australia).

Cracticus nigrogularis picatus Campbell, Nests & Eggs Austr. B. i. p. 302 (1901); Hartert, Nov. Zool. xii. p. 229 Brock's Creek, Northern Territory; South Alligator River; Eureka; Nellie Creek).

No. 23. ♀ imm. Alexandra, May 1905. Bill bluish green at the base, black at the tip; feet black; iris brown.

No. 38. ♂ adult. Alexandra, May 1905. Bill pale blue at the base, black at the tip; feet black; iris brown.

OREŒCA CRISTATA.

Oreoica cristata (Lewin): Gadow, Cat. B. Brit. Mus. viii. p. 174 (1883): Campbell, Nests & Eggs Austr. B. i. p. 310 (1901).

a, b. ♂ ♀ adult. Alexandra Station, July 1905. The bill of the female is black and that of the male dark brown: feet black; iris orange.

Both examples are paler in general coloration than any in the series in the British Museum.

This bird has great ventriloquial powers, except in the last note of its call.

PACHYCEPHALA FALCATA.

Pachycephala falcata Gould, P. Z. S. 1842, p. 134.

Pachycephala rufiventris falcata Hartert, Nov. Zool. xii. p. 230 (Derby: Eureka; Elvira River; South Alligator River).

No. 29. *a.* ♂ adult. Alexandra, May 1905. Bill dark brown; feet black; iris brown.

No. 70. *b.* ♂ adult. Alexandra, Sept. 1905.
" *c.* ♂ imm. " Oct. 31, 1905.
" *d.* ♂ adult. " Dec. 19, 1905.
" *e.* ♀ adult. " Jan. 7, 1906.

The specimen *b* is probably a very old female and, in the total absence of a black crescent surrounding the white throat, closely resembles the adult male. This example is almost free from striations, there being only a few narrow streaks on the white of the throat; the breast, abdomen, and flanks are tawny, very nearly approaching the colour in the pale examples of the male. The fact that this specimen was procured in the spring precludes the possibility of it being an immature male.

The other four skins agree fairly well with the series in the National Collection.

SITTELLA LEUCOPTERA.

Sittella leucoptera Gould, P. Z. S. 1839, p. 144 (north-west coast of Australia); Campbell, Nests & Eggs Austr. B. i. p. 343 (1901); Hall, Emu, ii. p. 53 (Fitzroy River).

Neositta leucoptera Hellmayr, J. f. O. 1901, p. 187; Hartert, Nov. Zool. xii. p. 231 (Meda Station, Kimberley; Derby; Eureka, Northern Territory; South Alligator River).

a, *b*. Adult. Alexandra.

CLIMACTERIS MELANURA.

Climacteris melanura Gould, P. Z. S. 1842, p. 138 (north-west coast of Australia); Campbell, Nests & Eggs Austr. B. i. p. 329 (1901); Hartert, Nov. Zool. xii. p. 232 (Liveringa, Derby; South Alligator River; Eureka, Northern Territory).

No. 35. *a, b*. ♀ adult. Alexandra, May 1905. Bill and feet black; iris brown.

This is one of the few species represented in the present collection that displays no inclination towards the formation of a pale desert-race; in fact the two skins from Alexandra are, if anything, darker and of a blacker brown than any which I have examined. Mr. Stalker found this bird feeding on small black ants.

DICÆUM HIRUNDINACEUM.

Dicæum hirundinaceum (Shaw & Nodder); Campbell, Nests & Eggs Austr. B. i. p. 437 (1901); Hall, Emu, ii. p. 52 Fitzroy River); Hartert, Nov. Zool. xii. p. 236 (Nullagine River; Ord River).

a. Adult. Alexandra.

b. ♂ juv. Alexandra, Oct. 21, 1905. Bill and feet black; iris brown.

PTILOTIS FORRESTI.

Ptilotis forresti Ingram, Bull. B. O. C. xvi. p. 116 (July 10, 1906).

Similar to *Ptilotis sonora*, but paler on the back and under surface, especially on the rump, which is of a light brown colour. The rump is noticeably lighter than the rest of the back, which is not the case in the typical *P. sonora*. Owing to the faintness of the striations on the breast and flanks, the under parts are not so dusky; the abdomen and under tail-coverts are unmarked, being of a dirty white colour, washed with isabelline. Total length about 7 inches, culmen ·8, wing 3·6, tail 3·7, tarsus 1.

In the large series of *P. sonora* at the British Museum there is a single skin from the late Mr. Gould's collection agreeing fairly well with the two birds from Alexandra. The label unfortunately gives no locality other than "Australia"; it bears the MS. note "light variety," shewing that Mr. Gould did not consider the specimen as typical.

a, b, c. Adult. Alexandra.

PTILOTIS KEARTLANDI.

Ptilotis keartlandi North, Rep. Horn Scient. Exped. p. 94, pl. 6 (1896); Campbell, Nests & Eggs Austr. B. i. p. 402 (1901); Hall, Emu, i. p. 98 (Fitzroy River); Hartert, Nov. Zool. xii. p. 233 (Marble Bar; Carbana Pool, Nullagine Road; Taylor's Creek, Nullagine, N.W. Australia).

No. 45. ♂ adult. Alexandra, May 1905. Bill black; feet pale brown; iris pale yellow.

a. ♂ adult. Alexandra, July 1905.

b. ♀ adult. Alexandra, July 1905. Bill black; feet dark brown; iris pale yellow.

MELITHREPTUS LÆTIOR.

Melithreptus lætior (Gould); Campbell, Nests & Eggs Austr. B. i. p. 368 (1901); Hall, Emu, i. p. 101 (Fitzroy River).

No. 33. ♂ adult. Alexandra, April 1905. Bill black; feet pale brown; iris brown.

No. 33. ♂ adult. Alexandra, May 1905.

a, b, c, d. Adult. Alexandra.

The measurements of one of the skins (no. 33) slightly exceeds those of the others; the bird is also larger than any of the examples in the National Collection. The food consists of insects.

ACANTHOCHÆRA RUFIGULARIS.

Acanthogenys rufigularis Gould, P. Z. S. 1837, p. 153 (New South Wales).

Entomophila rufigularis Campbell, Nests & Eggs Austr. B. i. p. 378 (1901); Hall, Emu, ii. p. 102 (1902: Fitzroy River).

a. ♂ adult. Alexandra Spring, Oct. 30. Bill and feet black.

I can find no record of this Honey-eater having occurred in the Northern Territory.

Campbell gives the geographical distribution of this bird as being S. Queensland, New South Wales, Victoria, South, West, and North-west Australia. Hall records it from the Fitzroy River ('Emu,' i. p. 102).

PHILEMON ARGENTICEPS.

Philemon argenticeps (Gould); Campbell, Nests & Eggs Austr. B. i. p. 434 (1901); Hartert, Nov. Zool. xii. p. 232 (Victoria River; Pine Creek; South Alligator River; Eureka; Brook's Creek).

No. 86. ♀ adult. Alexandra, Nov. 2, 1905. Bill and feet black; iris light blue.

MIRAFRA RUFESCENS.

Mirafra rufescens Ingram, Bull. B. O. C. xvi. p. 116 (July 10, 1906).

Resembles *M. woodwardi* in the fulvescent tone of its plumage, but is everywhere paler. The brown centres to the feathers of the back are less conspicuous than in typical examples of that species, while the striations on the chest are almost obsolete. As this pale form is distinctly rufous in the coloration of its plumage, it is obviously separable from Mr. Hall's desert-race, a greyish form that he has raised to subspecific rank under the name of *M. horsfieldi pallidus* ('Emu,' vol. iii. p. 232).

a. ♂ adult. Alexandra, April 1905. Bill brown; feet pale brown; iris brown.

b. ♀ adult. Alexandra.

The food consists of insects and seeds.

EMBLEMA PICTA.

Emblema picta Gould; Campbell, Nests & Eggs Austr. B. i. p. 481 (1901); Hall, Emu, ii. p. 55 (Fitzroy River); Hartert, Nov. Zool. xii. p. 239 (Coongan River).

No. 59. ♂ ♀ adult. Alexandra, July 1905. Bill black above and at the base of the lower mandible, the remainder of the lower mandible and the tip of the upper red; feet brown; iris dark red.

TÆNIOPYGIA CASTANOTIS.

Tæniopygia castanotis (Gould); Sharpe, Cat. B. Brit. Mus. xiii. p. 311 (1890: Fitzroy River); Hall, Emu, ii. p. 55 (Fitzroy River); Hartert, Nov. Zool. xii. p. 239 (Condon Road).

a. ♂; *b, c.* ♀ adult. Alexandra, April 1905. Bill brick-red; feet reddish brown; iris white.

STICTOPTERA BICHENOVII.

Stictoptera bichenovii (Vig. & Horsf.); Sharpe, Cat. B. Brit. Mus. xiii. p. 313 (1890: N.W. Australia); Campbell, Nests & Eggs Austr. B. i. p. 485 (1901).

a. Adult. Alexandra.

STICTOPTERA ANNULOSA.

Stictoptera annulosa (Gould); Sharpe, Cat. B. Brit. Mus. xiii. p. 314 (1890: Victoria River; Fitzroy River; Port Essington); Campbell, Nests & Eggs Austr. B. i. p. 486 (1901); Hall, Emu, ii. p. 57 (Fitzroy River); Hartert, Nov. Zool. xii. p. 239 (Crawford Springs, Northern Territory).

No. 54. ♂ ♀ adult. Alexandra, June 1905. Bill black; feet bluish grey; iris dark red.

MUNIA PECTORALIS.

Munia pectoralis (Gould); Campbell, Nests & Eggs Austr. B. i. p. 489 (1901); Hall, Emu, ii. p. 57 (Fitzroy River); Hartert, Nov. Zool. xii. p. 238 (Eureka).

No. 104. ♂ ♀ adult. Alexandra, Jan. 1906. Bill blue-grey; feet light brown; iris brown.

The crop contained flying ants.

XXI.—*On further Collections of Birds from the Efulen District of Camaroon, West Africa.* By R. Bowdler Sharpe, LL.D. *With Notes by the Collector,* G. L. Bates. —Part IV.*

(Plate X.)

Our indefatigable friend Mr. G. L. Bates has sent some further collections from Camaroon, which, as will be seen, contain examples of many interesting species. The series from the Zima Country did not turn out prolific of new species, but that from the River Ja has proved of considerable importance, particularly in the re-discovery of the beautiful *Diaphorophyia ansorgei* of Hartert, of which only the single type specimen from Angola, now in Mr. Rothschild's museum, was known.

As in my preceding papers, I have added a few notes on the species already recorded by me, but the principal portion of the present essay deals with the Passerine birds collected by Mr. Bates near Efulen, on the River Ja, and in the Zima Country. It is noteworthy that the new *Geocichla* (a wonderful discovery of Mr. Bates, to whom I have dedicated the species) was procured by him in the Efulen district, where he has long worked, so that there may yet be some more novelties to be found in that locality.

Mr. Bates has sent interesting notes on some of the species. To these his initials are appended in square brackets.

58. Francolinus lathami Hartl.; Sharpe, Ibis, 1904, p. 93.

Nos. 1175. ♂ ad.; 1212. ♀ juv. River Ja, Dec. 21, 30, 1905.

No. 1206. ♀ ad. River Ja, Dec. 29, 1905.

No. 1596. ♀ juv. ,, March 23, 1906.

The nestling has not such distinct white stripes as the adult, the shaft-streaks being sandy buff, while the scapulars and wing-coverts have a subterminal black bar on the inner web instead of chestnut, the inner secondaries being externally chestnut. The throat and abdomen are white, the fore-neck and chest ashy brown, having spear-shaped white centres with black margins.

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* *Cf.* for previous papers: Sharpe, 'Ibis,' 1904, pp. 88, 591; 'Ibis,' 1905, p. 461; Bates, 'Ibis,' 1905, p. 89.

The adult female differs from the male chiefly in the colour of the under surface, which is mostly white, the feathers being margined with black and mottled with brown edges. The upper surface is light brown vermiculated with dusky brown, blotched with black spots and more or less concealed sandy-buff bars on the scapulars and wing-coverts. The crown, too, in the female is brown instead of ashy.

[Heard in the Zima Country, but not seen.

The "Obem" is found in every part of the country where I have been, but it is as strictly confined to the forest as the "Okwal" is to clearings. I have sometimes caught glimpses of the "Obem," a few together, running on the ground beneath the undergrowth of the forest. A cackling sound, not so loud as the Okwal's but shriller, heard in the forest, has been stated by natives to be made by the Obem. The food found in the stomachs of specimens examined consisted usually of insects. All of my specimens have been caught with snares baited with termites. Two chicks were once heard *cheeping* near a forest-path, and caught. They were little fluffy things with two parallel stripes on head and back. The mother, in the undergrowth near by, made a clucking or purring noise to call them. The people with me set snares, with the little chicks tied near them, and caught the mother.

The chicks mentioned were found in June. Eggs have been found in May and in March. A female caught on the last day of December had small eggs in the ovary. A young bird, two-thirds grown, was caught about the same time.

Only two eggs were taken in a clutch, and the people say that they never find more. They are of a uniform light brown colour, somewhat pointed in shape, and measure 38 or 39 mm. × 27 or 28 mm.—G. L. B.]

59. Francolinus squamatus (Cass.); Sharpe, Ibis, 1904, p. 93.

1343, 1344. ♂ ♀ ad. River Ja, Jan. 22, 1906.

[Heard, but not seen, in the Zima Country.

The "Okwal" inhabits the borders of cassava patches and the thick growth of bushes where gardens have been abandoned, around every village where I have been, in the Gaboon region, on the Benito, in the Bulu Country, and in the Zima Country. Its whistling cackle, though sometimes heard in the evening or even at noon on a dark day, is oftenest heard early in the morning. This sound is as regular as if it were made by an alarm-clock set for 4.30 or 4.45 o'clock A.M. Many a morning when I have wished to get up early I have been aroused by the Okwal. Though such a near neighbour of man, and living largely upon food planted by him, it keeps itself so well hidden as to be seldom killed. Some natives are able to imitate its call and lure it near enough to shoot it. I have heard also of its being caught on its roost at night, for it is said to sleep soundly.

Okwal's eggs are not infrequently found on the ground, only two or three in a place. They are very like small hens' eggs of a dark tint. A small band of Okwal chicks, one-third grown, was seen in February; a half-grown young one was shot in March. Two old birds shot in January were breeding.—G. L. B.]

60. Guttera plumifera.

Guttera plumifera (Cass.); Sharpe, Ibis, 1904, p. 94.

[Called "Nkan" by the Fang and "Mvem" by the Bulu. This species, like the last, is a forest-bird, and is found in every place where I have lived. Some account of it has been given in the 'Ibis' (1904, p. 90).

In a village where I once passed the night two of these birds were brought in by boys returning from a porcupine-hunt with dogs. They said that the dogs had caught these two birds in their hiding-places on the ground, while the rest of the flock flew up into the trees. The gizzard of one specimen contained broken pieces of large hard seeds and sand.—G. L. B.]

61. VINAGO CALVA.

Vinago calva (Temm.); Reichenow, Vög. Afrikas, i. p. 394 (1901).

Nos. 953. ♀; 954. ♂. Efulen, July 24, 1905.

[The "Obeñ" is the most abundant Pigeon in every place where I have been. It was often seen in the Zima Country. It is found wherever there is ripe wild fruit, but is most abundant in old clearings where the "Umbrella-tree" ("aseñ") grows. I have seen large flocks in the more open inhabited country, where the above-named tree grows abundantly, in the dry season (July); and I used also to see large flocks in the mangroves of the Lower Benito River at the same season. But usually the birds are seen, three or four or half a dozen together, among the leaves of the trees in which they feed; or, on a cool misty morning, perched motionless on a high bare limb. The call which they make at intervals while feeding is very unlike the cooing of a Dove. It consists of several varied syllables, suggesting words of human speech, and any Bulu boy can tell you what the Obeñ says.

Specimens shot in July were breeding. A bird was seen sitting on its nest in September. This Pigeon makes a rude nest in the forks of small trees, often near villages. It lays two white eggs.—G. L. B.]

62. COLUMBA UNICINCTA Cass.; Sharpe, Ibis, 1904, p. 94.

No. 1320. ♀ ad. River Ja, Jan. 16, 1906. Eggs forming; some with shell.

No. 1387. ♂ ad. River Ja, Feb. 2, 1906. Testes large.

No. 1744. ♀ ad. „ June 11, 1906. Small eggs forming.

63. STREPTOPELIA SEMITORQUATA.

Streptopelia semitorquata (Rüpp.); Sharpe, Ibis, 1904, p. 596.

Nos. 1393, 1394. ♂ ♀ ad. River Ja, Feb. 6, 1906. Testes in the male very large.

No. 1976. ♂ ad. Bitye, River Ja, Oct. 15, 1906.

[This is the "Zum" of the Ja region, and has not been obtained about Efulen. It usually flies and perches high, making a whistling noise with its wings as it passes. It comes to the ground to feed, however, and lives in part upon what it finds in the gardens. All of my specimens have been obtained with a gun, as this bird avoids snares and perches too high for the bow. It makes a guttural noise like that made by tame Pigeons.

Specimens shot in February were breeding.—G. L. B.]

64. TYMPANISTRIA TYMPANISTRIA.

Tympanistria tympanistria (Temm. & Knip); Sharpe, Ibis, 1904, p. 94.

No. 1390. ♀ juv. River Ja, Feb. 3, 1906.

[This little Dove, called, like several other species, "Odu," lives about the gardens, which furnish it with its food, but it keeps pretty well hidden. My specimens have generally been snared.—G. L. B.]

65. CHALCOPELIA AFRA.

Chalcopelia afra (Linn.); Sharpe, Ibis, 1904, p. 94.

[This "Odu" is the commonest species, or at least the one most often seen, coming even into the village street to pick up food. It is shot by the boys with their bows and little palm-stalk arrows.—G. L. B.]

66. CHALCOPELIA BREHMERI.

Chalcopelia brehmeri (Hartl.); Sharpe, Ibis, 1904, p. 95.

Nos. 1169, 1171. ♀ ♂ ad. River Ja, Dec. 20, 1905.

No. 1821. ♀ ad. River Ja, July 1, 1906.

No. 2037. ♀ ad. Bitye, River Ja, Nov. 2, 1906.

All the females have the wing-spots decidedly tinged with green.

[This is called, in distinction, "Odu-mefan"; "mefan" meaning "the forest." It lives upon seeds and insects picked up from the ground in the forest. Many of my specimens have been obtained by snares baited with termites. Specimens obtained in December were breeding; two obtained in June were not. A female was shot on the nest in the Zima Country by my boys.—G. L. B.]

67. HIMANTOPUS HÆMATOPUS.

Himantornis hæmatopus Hartl.; Sharpe, Ibis, 1904, p. 94.

No. 2036. ♀ ad. Bitye, River Ja, Nov. 2, 1906.

[This forest-bird has been seldom obtained, and has never been seen alive, by me, but I have heard it, or heard of it, in every locality where I have remained long. A very characteristic sound of the forest at night and early morning, coming always from the direction of a stream of water, is universally attributed by the natives to the "Nkulengu," the name of this bird in Fang and Bulu. The native name is in imitation of this sound, the accent being placed on the last syllable. This call, which is loud and repeated with mechanical regularity, suggests the noise of an old pump worked by a windmill.

Two eggs, brought to me by a native, are believed to be those of this bird, because the perfectly black down on the fully-formed chicks found in them indicated a bird of the Rail kind, and the eggs were too large for any other member of this family that I know. They were said to have been taken from a nest among the upturned roots of an uprooted tree over the bank of a stream. They were of a dirty cream-colour, with spots and blotches of brown and grey; they measured 43 × 33 mm.—G. L. B.]

68. CANIRALLUS BATESI.

Canirallus batesi Sharpe; id. Ibis, 1904, p. 95.

No. 1866. ♀ juv. River Ja, July 27, 1906.

69. SAROTHRURA REICHENOVI.

Corethrura reichenovi Sharpe, Cat. B. xxiii. p. 121 (1894).

Sarothrura reichenovi Sharpe, Hand-l. B. i. p. 103 (1899).

No. 983. ♂ ad. Efulen, July 27, 1905. Testes rather small.

70. SAROTHRURA BONAPARTII.

Sarothrura bonapartei Bp.; Reichenow, Vög. Afr. i p. 290 (1900); Sharpe, Ibis, 1904, p. 95.

[This curious little Rail is sometimes caught on the ground by boys, who surround it where it hides under the grass. It is said not to fly. It lives in the grassy places about villages, not in the forest. Dr. Weber, one of the missionaries at Ebolewo'o, tells me that these birds are often caught by school-boys in the thick tangle of sweet-potato vines that covers the mission premises. He has often heard their cry, uttered in the daytime, and describes it as a short whistling note, several times repeated.

I have not obtained this bird in the region of the Ja. But once, while resting by the path some twenty or twenty-five miles west of my station near the Ja, I saw one run across from the thicket on one side of the path to that on the other, as quickly and stealthily as a wild rat, which I at first took it to be.—G. L. B.]

71. LIMNOCORAX NIGER.

Limnocorax niger (Gm.); Reichenow, Vög. Afrikas, i. p. 279 (1900).

No. 1831. ♂ ad. River Ja, July 7, 1906. Testes rather large.

72. PODICA CAMERUNENSIS.

Podica camerunensis Sjöst.; Reichenow, Vög. Afrikas, i. p. 300 (1900); Sharpe, Ibis, 1904, p. 96.

No. 1473. ♂ juv. River Ja, Feb. 27, 1906.

This specimen has the chin and throat, as well as the middle of the breast and abdomen, white, the sides of the body and under tail-coverts being barred with brown and white; the lower throat and fore-neck are also mottled with brown bars.

No. 1992. ♀ ad. Bitye, Ja River, Oct. 24, 1905. An egg was found in the oviduct.

This specimen agrees with the foregoing in plumage and markings.

73. ÆGIALITIS HIATICOLA.

Ægialitis hiaticola (Linn.); Sharpe, Cat. B. Brit. Mus. xxiv. p. 256 (1896).

Charadrius hiaticula Reichenow, Vög. Afrikas, i. p. 174 (1900).

No. 1975. ♂ hiem. Bitye, River Ja, Oct. 15, 1906.

74. ÆGIALITIS DUBIA.

Ægialitis dubia (Scop.); Sharpe, Cat. B. Brit. Mus. xxiv. p. 263 (1896).

Charadrius dubius Reichenow, Vög. Afrikas, i. p. 175 (1900).

No. 2034. ♂ juv. Bitye, River Ja, Nov. 1, 1906.

75. TRINGOIDES HYPOLEUCUS.

Tringoides hypoleucus (Linn.); Sharpe, Ibis, 1904, p. 96.

No. 1889. ♀ imm. River Ja, Aug. 6, 1906. Ovaries small.

No. 2058. ♂ juv. Bitye, River Ja, Nov. 7, 1906.

76. ŒDICNEMUS SENEGALENSIS.

Œdicnemus senegalensis Swains.; Sharpe, Ibis, 1904, p. 596.

[A single specimen was shot on a bare sloping rock several acres in extent, between Ebolewo'o and the Ja. Such great rocks or cliffs are found here and there, forming natural open places in the forest, and are scantily covered with grass and bushes. This bird flew when first seen, but alighted again on the rock, though it might easily have escaped into the surrounding trees. It seemed to shun the forest, and I took it to be a stranger from a desert region. The natives of the neighbouring village, to whom I shewed the bird, were not acquainted with it.—G. L. B.]

77. HAGEDASHIA RARA.

Lampribis rara (Rothsch., Hart., & Kleinschm.); Sharpe, Hand-l. B. i. p. 187 (1899).

Theristicus rarus Reichenow, Vög. Afrikas, i. p. 328 (1900).

No. 1177. ♀. River Ja, Dec. 21, 1905.

No. 1310. ♂. „ Jan. 15, 1906.

Compared with the adult recorded by me in 1904, which had a very short bill (culmen 3·5), the two birds now sent by Mr. Bates resemble specimens from the Gold Coast, *H. rara* R., H., & Kl., and have the culmen 5·1–5·2 inches. The culmen in the examples from the Gold Coast is 4·6 inches in length.

As the birds now sent by Mr. Bates have the rufous feathers of the breast and sides of neck, they must be referred to *H. rara* until they are demonstrated to be the young of *H. olivacea*.

78. HAGEDASHIA HAGEDASH.

Theristicus hagedash Reichenow, Vög. Afrikas, i. p. 325 (1900).

Nos. 1193, 1194. Ad. River Ja, Dec. 1905.
No. 1213. ♂ juv. River Ja, Dec. 30, 1905.
No. 1334. Ad. River Ja, Jan. 20, 1906.

79. DISSURA MICROSCELIS.

Dissoura microscelis (Gray); Reichenow, Vög. Afrikas, i. p. 347 (1901).

No. 1203. ♀ ad. River Ja, Dec. 28, 1905. Eggs forming.

80. ARDEA GOLIATH.

Ardea goliath Cretzschm.; Reichenow, Vög. Afrikas, i. p. 376 (1901).

No. 1275. ♂? River Ja, Jan. 9, 1906.
No. 1441. ♀ ad. ,, Feb. 20, 1906.

81. TIGRORNIS LEUCOLOPHA.

Tigrornis leucolopha (Jard.); Sharpe, Ibis, 1904, p. 98.

No. 1386. ♂ ad. River Ja, Feb. 2, 1906.
No. 1754. ♂ ad. ,, June 12, 1906.

[Of the birds of the Heron family I have little to say. They have generally been only one or two of a species, and those were killed some years ago, when no notes were kept. Of the Tiger-Bittern several specimens have been obtained both at Efulen and the Ja, and this bird seems to be the commonest member of the family. The contents of the stomach of the different individuals were various—a spider, grasshoppers, parts of a crab, a lizard, and a good-sized frog. A specimen shot in May had quite large eggs in the ovary.—G. L. B.]

82. BUBULCUS LUCIDUS.

Bubulcus ibis (L. 1758); Reichenow, Vög. Afrikas, i. p. 381 (1901).

Bubulcus lucidus (Rafin.); Sharpe, Hand-l. B. i. p. 202 (1899).

No. 1689. Ad. River Ja, May 1906.

[Skinned by a native in my absence.—G. L. B.]

83. PTERONETTA HARTLAUBI.

Pteronetta hartlaubi (Cass.); Sharpe, Ibis, 1904, p. 98.

[This Wild Duck, called "Alot" or "Aloteke," is known about Efulen, as it is on the Benito and the Como; but I got my first specimens at the Ja, where it is very common. Its call of alarm as it flies up, a rapid "ko-ko-ko," is often heard along the streams, but the dense foliage of the banks prevents its being frequently seen. It is bold in the region of the Ja, and comes to eat the cassava-roots that are put to soak by village women in the streams. By taking advantage of this habit the people sometimes snare it.—G. L. B.]

84. POLYBOROIDES TYPICUS.

Polyboroides typicus Smith; Sharpe, Ibis, 1904, p. 596.

No. 1232. ♀ imm. River Ja, Jan. 2, 1906.

No. 1630. ♀ ad. „ March 29, 1906.

No. 1791. ♀ imm. „ June 23, 1906. Small ova in ovary.

No. 1885. Imm. River Ja, Aug. 3, 1906.

[Once seen in the Zima Country.—G. L. B.]

85. ASTUR CASTANILIUS (Bp.); Sharpe, Ibis, 1904, p. 597.

No. 1152. ♂ ad. River Ja, Dec. 16, 1905. Testes of moderate size. A beautiful adult bird in full plumage. Wing 6·1 inches.

No. 1375. ♀ juv. River Ja, Jan. 30, 1906.

No. 1691. ♂ imm. „ May 1906.

No. —— ? ♂ ad. Bitye, River Ja, Nov. 11, 1906.

86. ASTUR TOUSSENELI.

Astur tousseneli (Verr.); Sharpe, Ibis, 1904, p. 597.

No. 1893. ♀ ad. River Ja, Aug. 7, 1906. Small eggs in ovary.

87. UROTRIORCHIS MACRURUS.

Urotriorchis macrurus (Hartl.); Sharpe, Ibis, 1904, p. 597; 1905, p. 464.

No. 976. ♀ ad. Efulen, July 27, 1905.

No. 994. ♀ ad. „ Aug. 31, 1905.

No. 1064. ♂ ad. „ Aug. 17, 1905. Testes rather large.

No. 1104. ♀ juv. Zima Country, Oct. 10, 1905. Ovaries very small.

This is the first young example of *Urotriorchis* that I have seen. It very much resembles the young of *Astur castanilius*, and has black spots on the under surface with black bars on the flanks. The tail has four broad bars of black, and the quills below are barred with silvery white and black.

[Though this species is mainly confined to the forest, as was stated before ('Ibis,' 1904, p. 597), I have learned that it comes about villages also. I have seen it in trees near a village; and a specimen (No. 994) was said to have been shot when it came back to pick up a fowl which it had dropped after starting away with it. In connexion with the catching of poultry by this bird a statement is made by the natives which is so remarkable that I venture to give it, even though it is not authenticated. They say that it does not fly upon its prey, but creeps up to it, on the ground; and, according to one account, it walks among the fowls, pretending to be one of them, and so pounces upon its prey.

Specimens shot in July and August were breeding.—G. L. B.]

88. DRYOTRIORCHIS BATESI.

Dryotriorchis batesi Sharpe, Ibis, 1904, p. 600.

No. 1103. ♂ ad. Zima Country, Oct. 10, 1905.

No. 1209. ♀ ad. River Ja, Dec. 29, 1905.

No. 1871. ♀ ad. „ July 28, 1906. Small ova in ovary.

No. 1983. ♂ ad. Bitye, River Ja, Oct. 18, 1906.

No. 2086. ♂ ad. „ „ Nov. 20, 1906.

89. GYPOHIERAX ANGOLENSIS.

Gypohierax angolensis (Gm.); Sharpe, Ibis, 1905, p. 364.

[This bird, called "Jun" or "Jul," was never found in the region of Efulen, but was common in that of the Ja. It was also present on the Benito, and I have heard of it in the region of the Campo River. I think that it follows the large rivers. It is said to catch fish; yet my specimens have generally had in their stomachs nothing but the fibrous oily husk of palm-nuts, and these birds are oftener seen near palm-trees than anywhere else. More than one meat-eating creature finds in palm-nuts a substitute for animal food.—G. L. B.]

90. HUHUA POENSIS.

Huhua poensis (Fraser); Sharpe, Ibis, 1904, p. 603.

No. 1381. ♂ ad. River Ja, Feb. 1, 1906.

No. 1830. ♂ ad. „ July 6, 1906.

91. HUHUA LEUCOSTICTA.

Huhua leucosticta (Hartl.); Sharpe, Ibis, 1904, p. 603.

No. 1428. ♂ ad. River Ja, Feb. 17, 1906.

No. 1973. ♂ ad. Kribi, Sept. 27, 1906. Testes of a medium size.

92. SCOPS LETTI.

Scops letti Büttik.; Sharpe, Ibis, 1904, p. 604.

No. 1852. ♀ ad. River Ja, July 20, 1906.

93. SYRNIUM NUCHALE.

Syrnium nuchale Sharpe; id. Ibis, 1904, p. 604.

No. 735. Ad. Efulen, June 6, 1905. Shot in a thicket in the daytime.

No. 1690. Juv. River Ja, May 1906.

No. 1842. ♂ ad. „ July 13, 1906. Testes small.

No. 1972. ♂ ad. Twenty-five miles from Kribi, Sept. 26, 1906. Testes small.

94. GLAUCIDIUM SJÖSTEDTI.

Glaucidium sjöstedti Reichenow; Sharpe, Ibis, 1904, p. 605.

No. 1832. ♀ juv. River Ja, July 7, 1906. Ovaries small.

No. 1906. ♀ ad. River Ja, Aug. 10, 1906. Small ova in ovary.

95. PŒOCEPHALUS AUBRYANUS Souancé; Sharpe, Ibis, 1904, p. 605.

No. 1368. ♀ ad. River Ja, Jan. 27, 1906. Ovary granular.

[Heard in the Zima Country. The species is known by its shriller scream.—G. L. B.]

96. PSITTACUS ERITHACUS.

Psittacus erithacus L.; Reichenow, Vög. Afrikas, ii. p. 2 (1902).

[The common Grey Parrot is fond of maize, and the flocks gather about the patches of corn when it is ripe. It is the work of the girls of the village to scare the Parrots away. The girls keep up a noise all day long, with their voices, and by drumming on logs, while the Parrots hang around persistently, watching for a chance to get a bite, yet afraid of the noise. When they get the opportunity they gorge themselves. A Grey Parrot has been caught alive from sheer inability to fly readily, owing to the weight of grain in its crop. Often seen in the Zima Country.—G. L. B.]

97. AGAPORNIS PULLARIA.

Agapornis pullaria (L.); Sharpe, Ibis, 1904, p. 605.

No. 1009. ♀ ad. Efulen, Aug. 7, 1905.
No. 1167. ♀ imm. River Ja, Dec. 19, 1905. Ovaries small.
No. 1844. ♀ ad. River Ja, July 15, 1906.
No. 2011. ♂ ad. Bitye, River Ja, Oct. 28, 1906.
No. 2055. ♂ ad. ,, ,, Nov. 5, 1906.

[The specimen of *Agapornis pullaria*, No. 1167, was caught by the boys in their hands, in the tall grass, owing to inability to fly, due to its gorging itself. Its crop was distended with the kernels of grass-seeds to half the size of the remainder of the body, after skinning.—G. L. B.]

98. EURYSTOMUS AFER.

Eurystomus afer (Lath.); Reichenow, Vög. Afrikas, ii. p. 228 (1902).

No. 1476. ♀ ad. River Ja, Feb. 27, 1906. Eggs forming.

No. 2106. ♂ ad. Bitye, River Ja, Nov. 28, 1906. Testes small.

[Heard in the Zima Country.—G. L. B.]

99. ALCEDO GUENTHERI Sharpe; id. Ibis, 1904, p. 607.

No. 1071. ♂ ad. Efulen, Aug. 20, 1905.

No. 1571. ♀ ad. River Ja, March 19, 1906. Eggs beginning to form.

Nos. 1931, 1935. ♂ ♀ ad. 25 miles from Kribi, Sept. 12–13, 1906. Small eggs in the ovary of the female.

100. ISPIDINA LEUCOGASTER (Fras.); Sharpe, Ibis, 1904, p. 607.

Nos. 823, 827. ♂ ad. Efulen, July 1, 1905.

Nos. 1020, 1051. ♀ ad. Efulen, Aug. 9, 18, 1905.

No. 1619. ♂ ad. River Ja, March 28, 1906.

No. 1938. ♀ ad. 25 miles from Kribi, Sept. 15, 1906.

No. 2021. ♂ ad. Bitye, River Ja, Oct. 29, 1906.

101. MYIOCEYX RUFICEPS.

Myioceyx ruficeps (Hartl.); Sharpe, Ibis, 1904, p. 607.

No. 734. ♂ ad. Efulen, June 6, 1905. Insects in stomach.

No. 967. ♀ ad. Efulen, July 26, 1905.

No. 1662. ♀ ad. River Ja, April 10, 1906.

No. 1936. ♂ ad. 25 miles from Kribi, Sept. 15, 1906.

No. 2046. ♀ ad. Bitye, River Ja, Nov. 5, 1906.

102. HALCYON BADIUS Verr.; Sharpe, Ibis, 1904, p. 608.

No. 780. ♂ ad. Efulen, June 14, 1905.

Nos. 956. ♂; 916, 990. ♀ ad. Efulen, July 14–28, 1905.

No. 1341. ♂? River Ja, Jan. 22, 1906.

Nos. 1493, 1499. ♂ ad. River Ja, March 3, 5, 1906.

103. HALCYON MALIMBICUS (Shaw); Sharpe, Ibis, 1904, p. 608.

No. 1021. ♀ ad. Efulen, Aug. 9, 1905.

No. 1627. ♀ ad. River Ja, March 29, 1906.

No. 1961. ♀ ad. 25 miles from Kribi, Sept. 21, 1906.

104. LOPHOCEROS CAMURUS.

Lophoceros camurus (Cass.); Sharpe, Ibis, 1904, p. 609.

No. 1498. ♂ ad. River Ja, March 5, 1906. Testes rather small.

[Heard in the Zima Country.—G. L. B.]

105. HORIZOCERUS HARTLAUBI.

Horizocerus hartlaubi (Gould); Sharpe, Ibis, 1904, p. 609.

No. 1967. ♂ ad. 25 miles from Kribi, Sept. 22, 1906. Testes large.

[One was shot in the Zima Country.—G. L. B.]

106. BYCANISTES ALBO-TIBIALIS.

Bycanistes albotibialis (Cab. & Reichen.); Reichenow, Vög. Afrikas, ii. p. 242 (1902).

No. 1764. ♂ ad. River Ja, June 14, 1906. Testes large.

[Often seen in the Zima Country.—G. L. B.]

107. ORTHOLOPHUS ALBOCRISTATUS.

Ortholophus albocristatus (Cass.); Sharpe, Ibis, 1904, p. 609.

No. 1431. ♂ ad. River Ja, Feb. 18, 1906. Testes rather small.

No. 1579. ♂ ad. River Ja, March 23, 1906. Testes rather small.

No. 1966. ♂ ad. 25 miles from Kribi, Sept. 22, 1906.

No. 1987. ♂ juv. Bitye, River Ja, Oct. 21, 1906.

I cannot follow Dr. Finsch in his reasoning concerning this species, which he has called *O. cassini*. In his letter to the 'Ibis' (1905, p. 286) he resumes his arguments, and maintains that Cassin's figure in the 'Journal'* of the Philadelphia Academy represents the Liberian White-crested Hornbill, while he says that the series of Liberian *Ortholophi* in the Leyden Museum agree with Cassin's figure. We have only one Liberian specimen in the British Museum, a duplicate from the Leyden Museum, and this bird does *not* agree with Cassin's plate, as it has not any white tips to the wing-coverts or inner secondaries, but only a few white spots on the outer web of some of the primaries.

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* I spoke of the 'Transactions' by mistake for 'Journal.'

I again affirm that the bird which agrees best with Cassin's plate and shews white spots on the wing-coverts and secondaries is the species from Gaboon and Camaroon. I suggest that a mistake may have been made in the locality of Cassin's original specimen.

108. SCOPTELUS BRUNNEICEPS.

Scoptelus brunneiceps Sharpe; id. Ibis, 1904, p. 610, pl. xii.

No. 1450. ♂ ad. River Ja, Feb. 22, 1906. Testes rather small.

No. 2045. ♂ ad. Bitye, River Ja, Nov. 5, 1906.

109. MELITTOPHAGUS AUSTRALIS.

Melittophagus australis Reichenow; Sharpe, Ibis, 1904, p. 611.

No. 1379. ♀ ad. River Ja, Jan. 31, 1906. Eggs forming.

No. 1442. ♂ ad. River Ja, Feb. 20, 1906. Testes rather large.

Nos. 1769, 1770. ♂ ♀ ad. River Ja, June 16, 1906.

No. 1896. ♂ ad. River Ja, Aug. 8, 1906.

No. 1908. ♀ ad. ,, Aug. 11, 1906.

[This bird is seen now and then sitting on an exposed twig, from which it makes sallies after insects, returning to the same perch. I have generally observed it thus near mid-day, when most other birds are hidden in the cool shade. Sometimes there are two of these Bee-eaters, on perches not far apart. Those seen have generally been silent, but one observed near Efulen in July uttered a series of sharp "cheeps" after each circuit-flight, beginning to "cheep" while still on the wing, and keeping it up for a minute or so on its perch, working its tail up and down as it did so.

Specimens in January, February, and May were breeding. In April, near the Ja, a bird of this species was seen to fly out of a hole in a bank near the path. The hole ran into the bank, near the surface above, for two or three feet, in loose, sandy soil. Two white eggs were found lying on clean, fresh earth, at the end of the hole; and nothing else was discovered, except a few dry hard bits of insects and a grain of maize. There was no evidence of the hole having been used before; there was no excrement in it. The eggs were very thin-shelled, and both got broken before they could be measured. They were short and blunt at both ends, and larger than the eggs of *Pycnonotus gabonensis,* which is a larger bird.—G. L. B.]

110. MEROPS BATESIANA.

Merops batesiana Sharpe; id. Ibis, 1904, p. 611.

No. 1475. ♀ ad. River Ja, Feb. 27, 1906.
No. 1612. ♂ ad. „ March 26, 1906.
No. 1828. Ad. „ July 4, 1906.
Nos. 2075, 2076. ♂ ♀. Bitye, River Ja, Nov. 18, 1906.

The female resembles the male in colour.

111. COSMETORNIS VEXILLARIUS.

Cosmetornis vexillarius (Gould); Hartert, Cat. B. Brit. Mus. xvi. p. 595 (1892).

Macrodipteryx vexillarius Reichenow, Vög. Afrikas, ii. p. 371 (1902).

No. 1497. ♂ ad. River Ja, March 5, 1906.

Nos. 1532, 1550. Imm. River Ja, March 10–15, 1906. Testes small.

The difference in the pattern of the markings on the under surface of the quills is most interesting, as the rufous notches or bars on the inner web are very variable in shape, the youngest birds having ovate spots, with the brown bars of varying shape, so that it would appear that the pattern changes without any direct moult of the quill.

112. CAPRIMULGUS BATESI.

Caprimulgus batesi Sharpe, Bull. B. O. C. xix. p. 18 (Nov. 1906).

No. 1267. ♂ ad. River Ja, Jan. 8, 1906. Testes large.

Nos. 1610, 1632. ♀ ad. River Ja, March 26–29, 1906. Eggs in process of formation.

Nos. 1698, 1700. ♀ ad. River Ja, May 29, 1906.

No. 1870. ♀ ad. River Ja, July 28, 1906.

No. 1879. ♂ ad. „ Aug. 1, 1906.

This large Goatsucker seems to me to be new to science. It is apparently allied to *C. nigriscapularis* of Reichenow, but is very much larger, measuring 7·2–7·5 inches in the wing of the male, 7·3–7·6 in that of the female, whereas in *C. nigriscapularis* the wing is given as 5·15. The male has a very small white spot on the inner web of the first primary, a larger and more rounded one on the inner web of the second, the third and fourth being banded across both webs with white. The male likewise has the two outer tail-feathers broadly tipped with white, fringed at the extreme ends with dusky brown. The female has no white on the quills or tail-feathers, but one specimen shews a slight indication of a wing-bar in the shape of rufous notches in the first four primaries. The females are slightly more rufescent in tone than the males.

113. CAPRIMULGUS EUROPÆUS.

Caprimulgus europæus L.; Hartert, Cat. B. xvi. p. 526 (1892); Reichenow, Vög. Afrikas, ii. p. 352 (1902).

No. 1500. ♂ ad. River Ja, March 5, 1906.

This appears to be the first record of our Common Nightjar in West Africa.

114. CAPRIMULGUS SHARPII.

Caprimulgus sharpei Alexander, Bull. B. O. C. xii. p. 29 (1901).

Caprimulgus trimaculatus sharpei Reichenow, Vög. Afrikas, ii. p. 358 (1902).

No. 1920. ♂ ad. E. of Ebolewo'o, Aug. 19, 1906. Testes small.

This specimen has been compared with the type, kindly lent to me by my friend Alexander.

115. CYPSELUS BATESI.

Cypselus batesi Sharpe, Bull. B. O. C. xiv. p. 63 (1904).

Apus batesi Reichenow, Vög. Afrikas, iii. p. 827 (1905).

[Swifts may be seen, almost any clear day, rapidly coursing high in the air. Having no white on the hinder part of the body, these cannot be *Chætura stictilæma*, which is also sometimes seen. The only black Swift that I know here is *C. batesi*, of which the type specimen was obtained as stated before ('Ibis,' 1905, p. 91). It has not been secured since; yet these Swifts are abundant, and I wonder where they roost and nest, and why no one, even of the natives, ever finds them.

One afternoon, immediately after a hard rain, a lot of Swifts were seen coursing near the earth. The rain had hardly ceased, and there had not been time for them to be attracted by insects rising from the ground after the rain; so I think that they must have followed the insects which they had been pursuing in the upper air, as these were borne downward by the rain. The Swifts disappeared soon, and were seen going in the direction in which the rain-clouds had gone.—G. L. B.]

116. COLIUS NIGRISCAPALIS.

Colius nigriscapalis Reichenow; Sharpe, Ibis, 1904, p. 612.

No. 1148. ♂ ad. River Ja, Dec. 15, 1905.

Nos. 1257, 1264. ♀ ad. River Ja, Jan. 7, 1906.

No. 1290. ♀ ad. River Ja, Jan. 11, 1906. Eggs beginning to form.

Nos. 2068, 2092. ♂ ♀ ad. Bitye, River Ja, Nov. 14, 24, 1906.

[These birds are unknown in the strictly forest-region about Efulen; they are common in the extensive old clearings of the Ja. They fly about in flocks of half a dozen or a dozen, feeding on the fruits of wild vines and bushes, and spending much of their time perched motionless. Their favourite place is a small tree that is bare of leaves. There one or more of them may be seen clinging to a perpendicular twig, against which the long tail is braced, something in the manner of a Woodpecker; but they cannot cling to a large tree-trunk in this way. Their tails soon become much worn, and it is rare to get a specimen with a perfect tail. They utter a peculiar little plaintive "cheep."—G. L. B.]

117. Hapaloderma narina.

Hapaloderma narina Sharpe, Ibis, 1904, p. 613.

Nos. 1288–1367. ♂ ad. River Ja, Jan. 11–26, 1906. Testes rather large.

No. 1388. ♂ ad. River Ja. Feb. 2, 1906. Testes medium size.

[Heard in the Zima Country.—G. L. B.]

118. Turacus zenkeri.

Turacus zenkeri Reichenow; id. Vög. Afrikas, ii. p. 56 (1902).

Nos. 1615, 1620. ♂ ad. River Ja, March 27, 1906. Ovaries granular.

No. 1683. ♂ ad. River Ja, April 18, 1906.
No. 1856. ♀ ad. ,, July 24, 1906.
No. 1914. ♀ ad. ,, Aug. 13, 1906.

[Heard in the Zima Country.—G. L. B.]

119. Turacus meriani.

Turacus meriani (Rüpp.); Sharpe, Ibis, 1904, p. 613.

Nos. 1010, 1023, 1102, 1110. ♂ ♀. Efulen, Aug. 5, 7, 9, 1905.

120. Coccystes cafer.

Coccystes cafer (Licht.); Sharpe, Ibis, 1904, p. 613.

No. 1455. ♂ ad. River Ja, Feb. 23, 1906.

121. Pachycoccyx validus.

Pachycoccyx validus (Reichenow); Sharpe, Hand-l. B. ii. p. 156 (1900); Reichenow, Vög. Afrikas, ii. p. 83 (1902); Dubois, Ann. Mus. Congo, i. pl. i. fig. 2 (1905).

No. 1835. ♂ juv. River Ja, July 8, 1906.

122. Cuculus solitarius.

Cuculus solitarius Steph.; Sharpe, Ibis, 1904, p. 613.

[The notes uttered by this bird here are undoubtedly the same as those to which the words "Piet-mijn-vrow" are attributed in South Africa, the Bulu version of them being "Za-so-foé," meaning "Who brings the news?" These words often serve as the name of the bird, though many people know it as the "Little Hawk." The call of "Za-so-foé" may be heard at almost any hour of the day, especially if it be cloudy; but it is most often noticed at evening and at night. When lying awake, I have heard it at all hours.

The bird has another call in much the same tone, but rising instead of descending in pitch. This same bird has at last been identified as the source of still another peculiar bird-call that long puzzled me—a startling loud and rapidly-repeated cry sounding like "*Hurry*! HURRY! HURRY!" first increasing in loudness and then dying away. This bird, like its kindred celebrated in poetry, is hard to locate by its cry. It was heard in the Zima Country.—G. L. B.]

123. CUCULUS GABONENSIS.

Cuculus gabonensis Lafr.; Sharpe, Hand-l. B. ii. p. 159 (1900); Reichenow, Vög. Afrikas, ii. p. 88 (1902).

No. 951. ♂ ad. Efulen, July 25, 1905.

No. 1139. ♂ juv. 150 miles from the coast, Nov. 6, 1905.

Nos. 1446, 1451. ♂ ad. River Ja, Feb. 21, 1906.

No. 1481. ♂ ad. River Ja, March 1, 1906.

No. 1887. ♂ ad. „ Aug. 4, 1906.

No. 1901. ♀ imm. „ Aug. 9, 1906.

No. 2108. ♀ imm. Bitye, River Ja, Nov. 30, 1906.

The young bird (No. 1139) has whitish edgings to the feathers of the upper surface and of the throat, the latter being black with a few chestnut feathers. The under tail-coverts have a few black cross-bars; but these are not so plentiful as in *C. jacksoni*, which also has the under wing-coverts narrowly but plentifully barred with black, as well as the axillaries.

124. CERCOCOCCYX MECHOWI.

Cercococcyx mechowi Cab.; Reichenow, Vög. Afrikas, ii. p. 84 (1902).

Nos. 1382, 1385. ♂ ♀ imm. River Ja, Feb. 1, 1906.

Nos. 1592, 1634. ♂ ♀ imm. River Ja, March 21, 30, 1906.

None of these examples seem to be quite adult. The older birds (1385, 1634) have deep sandy-buff under tail-coverts, the others being creamy-buff.

125. METALLOCOCCYX SMARAGDINEUS.

Metallococcyx smaragdineus (Sw.); Sharpe, Ibis, 1904, p. 614.

No. 1323. ♂ ad. River Ja, Jan. 16, 1906.

No. 1674. ♂ ad. „ April 13, 1906.

[This is another bird the call of which, put in words, constitutes its Bulu name, which is "Ta-ôjôé." It is supposed to say "Ta! ta ôjoé," "Look! a Pigmy Antelope!" This call is often heard at mid-day when the sun is shining, and the bird is perched on some bare limb on the top of a tall tree. It is a very agreeable sound. A specimen was obtained in the Zima Country.—G. L. B.]

126. CHRYSOCOCCYX KLAASI.

Chrysococcyx klaasi (Steph.); Sharpe, Ibis, 1904, p. 614.

No. 1363. ♀ ad. River Ja, Jan. 25, 1906. Eggs beginning to form.

No. 1564. ♂ ad. River Ja, March 17, 1906.

[The species of *Chrysococcyx* have clear whistling calls, very characteristic and unmistakable when learned. *C. klaasi* may be supposed to spell "p-o-p"—that is, to utter the names of those letters in a clear, high, though not loud tone.—G. L. B.]

127. CHRYSOCOCCYX FLAVIGULARIS.

Chrysococcyx flavigularis Shelley, P. Z. S. 1879, p. 679, pl. 50; id. Cat. B. Birds Brit. Mus. xix. p. 282 (1891).

No. 1335. ♂ ad. River Ja, Jan. 20, 1906.

This specimen agrees with Captain Shelley's description and figure. The original type in the British Museum is said to have come from the Gold Coast.

128. CHRYSOCOCCYX CUPREUS.

Chrysococcyx cupreus (Bodd.); Sharpe, Ibis, 1904, p. 615.

No. 1512. ♂ pull. River Ja, March 7, 1906.

No. 1651. ♂ ad. ,, April 3, 1906.

[This bird is supposed to utter its own name, "Kumajaja," though it really pipes an indefinite number of syllables, and runs together those after the first two or three so rapidly that one cannot stop to say the rather difficult syllable "ja" in that way.

The various calls of birds of the Cuckoo family constitute a large part of the most characteristic bird-sounds of this country. I have heard several of them imitated in the varied song of *Turdus saturatus*.

C. cupreus has been found with large breeding-organs in June, July, and December. As stated before ('Ibis,' 1905, p. 96), I once saw a young *Chrysococcyx* seated on a branch, being fed by a female *Tchitrea viridis*.

All the members of the Cuckoo family named thus far live almost exclusively on caterpillars. This species was heard in the Zima Country.—G. L. B.]

129. CENTROPUS ANSELLI.

Centropus anselli Sharpe, Ibis, 1905, p. 466.

No. 1231. ♂ ad. River Ja, Jan. 2, 1906. Testes moderately developed.

No. 1515. ♂ ad. [moulting]. River Ja, March 7, 1906. Testes rather large.

No. 1580. ♀ imm. River Ja, March 21, 1906. Eggs forming.

No. 1709. ♀ juv. River Ja, June 1, 1906.

No. 2062. ♀ imm. Bitye, River Ja, Nov. 12, 1906.

[This is more of a forest-species than its other congeners; I have found it only at the Ja, but there it is not rare. That it sometimes kills and eats smaller birds is proved by a curious incident. My first specimen, No. 599, which was caught in a snare on the ground, had in its stomach the neck, the skull-bones, an eye, and a bit of feathered skin of a *Cossypha cyanocampter.* Several snares had been placed near together at that place; and in another, a foot or two away, was found the dead body of a *Cossypha* with the head torn off, though the bill was left hanging. As these snares catch the birds by their feet and seldom kill them, the *Centropus* probably found the little bird alive, and devoured it, when it got caught itself.—G. L. B.]

130. CENTROPUS MONACHUS.

Centropus monachus Rüpp.; Sharpe, Ibis, 1904, p. 615.

No. 943. ♂ ad. Efulen, July 21, 1905.

No. 1050. ♂ ad. „ Aug. 15, 1905.

No. 1374. ♂ ad. River Ja, Jan. 30, 1906. Testes rather small.

No. 1519. ♂ ad. River Ja, March 8, 1906. Testes rather large.

[This is the commonest large bird of the old clearings in the neighbourhood of the villages wherever I have been. Its doleful call is one of the first bird-sounds noticed by newcomers to West Africa. The natives have strange superstitious notions about it. One thing that the Bulu people say may have a foundation in fact, namely, that the "Du'u," as they call this bird, kills snakes and carries the heads to its nest. I have seen a nest of this bird, but it, at least, had no parts of dead snakes about it. It was in a small tree, from which hung a thick tangle of vines, not far from the village; it consisted of a mass of dry leaves loosely piled in a fork of the branches. There were three white eggs in it, blunt at the ends, measuring 37 × 28 mm.

The food of the "Du'u" is insects, mainly grasshoppers, as well as larger prey. One that was killed had in its stomach the remains of a wild mouse. I caught another in the act of tearing open a retort-shaped nest of *Heterhyphantes nigricollis* hanging in a bush. It flew to a limb near by, where it sat wiping its bill. One nestling was found in the nest when I went to look: the bird had probably eaten the other.—G. L. B.]

131. CEUTHMOCHARES AËREUS.

Ceuthmochares aereus (V.); Sharpe, Ibis, 1904, p. 615.

No. 1313. ♂ ad. River Ja, Jan. 15, 1906.
No. 1846. ♀ ad. „ July 17, 1906.

[This is a bird of thickets, whether in the forest or in the smaller growth of old clearings. I have never yet seen it flying in the open. It threads its way through tangled vines and branches with the agility of a squirrel. Its call is very unlike that of any other Cuckoo, being like that made by some tiny Sunbird; it begins with some scattered notes in a fine high-pitched voice, then repeats these more and more rapidly till they run together in a continuous sound. Often heard in the Zima Country.—G. L. B.]

132. INDICATOR STICTITHORAX.

Indicator stictithorax Reichenow; Sharpe, Hand-l. B. ii. p. 176 (1900); Reichenow, Vög. Afrikas, ii. p. 110 (1903).

Nos. 1937, 1941, 1944. 25 miles from Kribi, Sept. 15–19, 1906.

133. INDICATOR MACULATUS.

Indicator maculatus Gray; Shelley, Cat. B. Brit. Mus. xix. p. 9 (1891); Reichenow, Vög. Afrikas, ii. p. 109 (1903).

No. 873. ♂ ad. Efulen, July 11, 1905.

This specimen agrees with the type of *I. maculatus* in the British Museum, allowing for the faded condition of the latter. The other birds which I believe to be *I. stictithorax* have the rounded spots confined to the breast, and the rest of the under surface streaked, whereas the whole of the under surface is spotted in *I. maculatus*, including the under tail-coverts.

134. INDICATOR CONIROSTRIS.

Indicator conirostris (Cass.); Sharpe, Ibis, 1904, p. 616.

No. 2124. ♂ ad. Bitye, River Ja, Dec. 12, 1905.

135. INDICATOR EXILIS.

Indicator exilis (Cass.); Sharpe, Ibis, 1904, p. 615.

Nos. 867, 874. ♂ ad. Efulen, July 10, 1906.
Nos. 910, 911. ♂ ♀ ad. „ July 14, 1905.

No. 1594. ♂ juv. River Ja, March 22, 1906. This appears to be the young of *I. exilis*, but has a very small reddish-brown bill. The wings are like the back, olive-green, with obscure dusky centres to the wing-coverts, but there is a golden-olive tint everywhere. The under surface of the body is olive greenish, greyer on the throat; the feet are pale reddish brown.

136. LYBIUS BIDENTATUS.

Lybius bidentatus (Shaw); Sharpe, Ibis, 1904, p. 616.

Nos. 1263, 1269. ♀; 1289. ♂ ad. River Ja, Jan. 1906.

137. GYMNOBUCCO PELI.

Gymnobucco peli Hartl.; Sharpe, Ibis, 1904, p. 616.

Nos. 1241, 1249. ♀ ad.; 1242. ♂. River Ja, Jan. 1906.

138. HELIOBUCCO BONAPARTII.

Heliobucco bonapartei (Hartl.); Sharpe, Ibis, 1904, p. 617.

No. 1254. ♀ ad. River Ja, Jan. 6, 1906. Ovaries granular.

No. 1025. ♀ ad. River Ja, Jan. 17, 1906.

Nos. 1684. ♀ ad.; 1685. Pull. River Ja, April 18, 1906.

No. 1894. Pull. River Ja, Aug. 7, 1906.

No. 1991. ♀ ad. Bitye River, Oct. 23, 1906.

The nestling has the bill flesh-coloured, blackish at the tip. Its plumage does not seem different from that of the old birds.

139. BUCCANODON DUCHAILLUI.

Buccanodon duchaillui Cass.; Sharpe, Ibis, 1904, p. 617.

Nos. 752, 753. ♀ ad. Efulen, June 9–12, 1905.

No. 1178. ♀ ad. River Ja, Dec. 21, 1905.

No. 1250. ♂ ad. „ Jan. 5, 1906.

No. 2109. ♀ imm. Bitye, River Ja, Nov. 30, 1906.

140. BARBATULA SUBSULFUREA.

Barbatula subsulfurea (Fraser); Sharpe, Ibis, 1904, p. 617.

No. 1243. ♂ ad. River Ja, Jan. 4, 1906.

Nos. 1326, 1329. ♂ ♀. River Ja, Jan. 17–18, 1906.

No. 1985. ♀ ad. River Ja, Oct. 19, 1906. Eggs in ovary very small.

[A *clinking* note repeated at various rates of speed, but usually about as fast as one can count, from three to a dozen times before pausing, is one of the bird-sounds that first arrests one's attention in this country. It is made by one or both of the above-named species, which cannot be distinguished when up in a high tree. Indeed, the little bird can rarely be seen at all, both because it perches so high and because it is so small.—G. A. B.]

141. Barbatula leucolæma.

Barbatula leucolæma J. & E. Verr.; Sharpe, Ibis, 1904, p. 617.

No. 1426. ♀ ad. River Ja, Feb. 16, 1906.
No. 1482. ♀ ad. „ March 1, 1906. Eggs beginning to form.
Nos. 1823, 1834. ♂ ♀ ad. River Ja, July 2–8, 1906.
No. 1883. ♀ ad. River Ja, Aug. 2, 1906.

142. Barbatula flavo-squamata.

Barbatula flavisquamata (Verr.); Sharpe, Ibis, 1904, p. 618.

No. 1082. ♀ ad. Zima Country, Oct. 8, 1905.
Nos. 1350, 1354. ♀ ad. River Ja, Jan. 23–24, 1906.
No. 1668. ♂ ad. River Ja, April 11, 1906.
No. 1847. ♀ ad. „ July 17, 1906.

143. Trachylæmus purpuratus.

Trachylæmus purpuratus Verr.; Sharpe, Ibis, 1904, p. 618.

No. 942. ♀ ad. Efulen, July 20, 1905.
No. 1001. ♂ ad. „ Aug. 4, 1905.
No. 1216. ♂ ad. River Ja, Dec. 31, 1905.

144. Tricholæma flavipunctata.

Tricholæma flavipunctatum Verr.; Sharpe, Ibis, 1904, p. 618.

No. 1110. ♀ ad. Zima Country, Oct. 11, 1905.
No. 1593. ♂ ad. River Ja, March 22, 1906.
No. 1648. ♂ ad. „ April 3, 1906.

145. DENDROMUS NIVOSUS.

Dendromus nivosus (Sw.); Sharpe, Ibis, 1904, p. 619.

No. 1129. ♂ ad. Zima Country, Oct. 13, 1905. Testes very small.

Nos. 1233. ♀ juv.; 1252, 1319. ♂ ad. River Ja, Jan. 2–15, 1906.

No. 1410. ♂ juv. River Ja, Feb. 12, 1906.

No. 1613. ♂ ad. " March 26, 1906.

No. 2026. ♂ ad. Bitye, River Ja, Oct. 10, 1906.

146. DENDROMUS PERMISTUS.

Dendromus permistus (Reichenow); Sharpe, Ibis, 1904, p. 619.

No. 1272. ♀ ad. River Ja, Jan. 8, 1906.

No. 1408. ♀ ad. " Feb. 10, 1906.

No. 2110. ♀ ad. Bitye, River Ja, Dec. 1, 1906.

147. DENDROMUS CAROLI.

Dendromus caroli (Malh.); Sharpe, Ibis, 1904, p. 619.

No. 1297. ♂ ad. River Ja, Jan. 13, 1906. Testes rather large.

No. 1639. ♀ ad. River Ja, March 21, 1906.

148. DENDROPICUS GABONENSIS.

Dendropicus gabonensis (Verr.); Sharpe, Ibis, 1904, p. 619.

No. 1136. ♂ ad. River Ja, Oct. 22, 1905.

149. DENDROPICUS CAMERUNENSIS, n. sp.

♂. *D.* similis *D. lafresnayei*, sed ubique saturatior et viridescentior; secundariis intus conspicuè albo, nec aureoflavo, fasciatim notatis. Long. tot. 5·5 poll., culm. 0·7, alæ 3·3, caudæ 1·7, tarsi 0·55.

No. 1507. ♂ ad. River Ja, March 6, 1906.

No. 1611. ♂ ad. " March 26, 1906.

No. 1802. ♂ ad. Bitye, River Ja, June 26, 1906.

No. 1859. ♀ ad. " " July 25, 1906.

150. MESOPICUS ELLIOTI.

Mesopicus ellioti (Cass.); Sharpe, Ibis, 1904, p. 621.

No. 1181. ♀ ad. River Ja, Dec. 22, 1905. Ovaries granular.

This is the first female specimen sent by Mr. Bates. It has a black head, instead of having a red hinder crown and nape. It agrees with Cassin's description (Pr. Acad. Nat. Sci. Philad. 1863, p. 197).

151. VERREAUXIA AFRICANA.

Verreauxia africana (Verr.); Sharpe, Ibis, 1904, p. 620.

No. 1337. ♂ ad. River Ja, Jan. 22, 1906.

No. 1422. ♀ ad. 25 miles from Kribi, Feb. 16, 1906. Eggs beginning to form.

No. 1521. ♀ ad. 25 miles from Kribi, March 8, 1906.

No. 1642. ♂ ad. River Ja, March 31, 1906.

No. 1969. ♂ ad. 25 miles from Kribi, Sept. 24, 1906.

No. 2122. ♂ ad. Bitye, River Ja, Dec. 9, 1906.

152. HIRUNDO RUSTICA.

Hirundo rustica L.; Reichenow, Vög. Afrikas, ii. p. 406 (1903); Sharpe, Hand-l. B. iii. p. 132 (1903).

No. 732. Ad. Efulen. [Shot and skinned by a native in my absence.—G. L. B.]

153. HIRUNDO GORDONI.

Hirundo gordoni Jard.; Sharpe, Ibis, 1905, p. 467.

No. 1466. ♀ ad. River Ja, Feb. 26, 1906. Eggs beginning to be formed.

Nos. 1775, 1812. ♂ ♀ juv. River Ja, June 1906.

154. PSALIDOPROCNE NITENS.

Psalidoprocne nitens (Cass.); Sharpe, Ibis, 1904, p. 622; Sharpe, Hand-l. B. iii. p. 202 (1903).

No. 996. ♀ ad. Efulen, Aug. 3, 1905.

Nos. 1040, 1041. Juv. Efulen, Aug. 14, 1905.

155. PSALIDOPROCNE PETITI.

Psalidoprocne petiti Sharpe & Bouvier; Reichenow, Vög. Afrikas, ii. p. 428 (1903); Sharpe, Ibis, 1905, p. 467.

No. 1687. ♂ ad. River Ja, April 20, 1906.

Nos. 1826, 1833. ♂ ad., ♀ juv. River Ja, July 2, 8, 1906.

[These two species of *Psalidoprocne* seem to have learned the secret of perpetual motion. They may be seen sailing in endless curves over cleared land at almost any time that one looks for them. The kind of place where they most abound is a freshly-burned clearing; but often over the village street they are very numerous. Boys can sometimes knock one down with a stick when they sail near the ground. Sometimes, especially in the afternoon, some of these birds may be seen perched on a bare twig, at rest; but if watched they soon sail away again.

They are said to nest in holes bored in clay banks, the sides of pitfalls dug for animals in the forest being favourite places. One of my specimens (a female), brought to me alive, was said to have been caught in a hole in the side of a pit. Some of these birds repeatedly visited a freshly-dug place on a hillside near my house, and even perched on the timbers there, but seemed to decide at last against it as a nesting-place.

A number of male examples of *P. petiti* were shot in the months of February, April, May, and June, and all, without exception, had the breeding-organs large.

In the Zima Country these birds were seen flying over a village, hunting for insects.—G. L. B.]

156. ALSEONAX EPULATA.

Alseonax epulata (Cass.); Sharpe, Ibis, 1904, p. 622.
Nos. 832, 833. ♂ ♀. Efulen, July 3, 1905.
No. 845. ♂ ad. „ July 5, 1905.
No. 1052. ♀ ad. „ Aug. 15, 1905.
Nos. 1555, 1555 *a*. Juv. River Ja, March 1906.

The last two specimens were procured by a boy during Mr. Bates's absence. They seem to me to be immature, although I cannot see any sign of rufous spotting.

157. ALSEONAX FANTISIENSIS.

Alseonax fantisiensis Sharpe; id. Ibis, 1904, p. 622.
No. 825. ♀ ad. Efulen, July 1, 1904.
No. 978. ♀ ad. „ July 27, 1905.
No. 1947. Juv. Lobo River, Aug. 18, 1906.
No. 2125. ♂ ad. East of Ebolewo'o, Dec. 15, 1906.

158. Stizorhina fraseri.

Stizorhina fraseri Strickl.; Sharpe, Ibis, 1904, p. 623.

No. 888. ♀ ad. Efulen, July 12, 1905.

No. 1024. ♀ ad. „ Aug. 9, 1905.

Nos. 1099, 1116. ♂ ad. Zima Country, Oct. 10–12, 1905.

Nos. 1092, 1105. ♀ ad. Zima Country, Oct. 8, 11, 1905.

No. 1124. ♂ pull. „ „ Oct. 12, 1905.

No. 1373. ♂ imm. River Ja, Jan. 29, 1906.

No. 1421. ♂ ad. „ Feb. 16, 1906.

Nos. 1595, 1609. ♀; 1608. ♂ ad. River Ja, March 23, 26, 1906.

No. 1645. ♂ ad. River Ja, April 2, 1906.

No. 1867. ♀ ad. „ July 27, 1906.

The female is smaller than the male, having the wing 3·5 inches, as against 3·85–3·95 inches.

The nestling is an extraordinary-looking little bird, the feathering being like that of the adult, but rather paler.

[This bird differs from most Flycatchers not only in the colouring (which closely mimics that of *Neocossyphus poensis*), but also in manner, not having the habit of circling back to the same perch when it flies after an insect. The only sound I had heard made by this bird was a harsh little two-syllabled cry, till I shot the specimen No. 1645. That was perched on a vine hanging from trees in the forest, vigorously repeating a little song—or what seemed to be intended for a song, though unmusical,—consisting of five syllables in a monotone. This song sounded much like the four-syllabled song of *Tchitrea viridis*, with an added syllable. The singer proved to be a male with the breeding-organs large. The date was in April.—G. L. B.]

159. Muscicapa grisola.

Muscicapa grisola L.; Sharpe, Ibis, 1904, p. 623.

No. 1631. ♂ ad. River Ja, March 29, 1906.

160. Muscicapa lugens.

Muscicapa lugens (Hartl.); Sharpe, Ibis, 1904, p. 623.

No. 781. ♂ ad. Efulen, June 14, 1905.

No. 824. ♀ ad. „ July 1, 1905.

Nos. 1046, 1076. ♂ ♀ ad. Efulen, Aug. 15, 24, 1905.

No. 1464. ♀ ad. River Ja, Feb. 29, 1906.

Nos. 2118. ♀ ad.; 2118*a*. Juv. Bitye, River Ja, Dec. 5, 1906.

[As already stated ('Ibis,' 1905, p. 94), this Flycatcher is never seen except over the water of some good-sized stream. I have lately found two nests of this species, both placed on snags projecting up out of the water; in one case the nest was five or six feet above the surface of the stream, in the other only about two feet. The structure, most carefully examined, was shallow and cup-shaped, made of moss and fine weed-stems and rootlets, with a few fine grass-tops for lining. It contained two half-grown young; the month was November. The other nest, with a bird sitting on it, was seen early in December. The young birds referred to had the feathers with the tips just emerging from the sheaths, and these tips were of a light brown colour. —G. L. B.]

161. MUSCICAPA CÆRULESCENS.

Muscicapa cærulescens (Hartl.); Sharpe, Ibis, 1904, p. 624.

No. 1098. ♀ ad. Zima Country, Oct. 10, 1905. Ovaries small.

No. 1420. ♂ ad. River Ja, Feb. 16, 1906.

162. PŒDILORHYNCHUS CAMERUNENSIS.

Pœdilorhynchus camerunensis Reichenow; Sharpe, Ibis, 1904, p. 624.

No. 806. ♂ ad. Efulen, June 26, 1905.

No. 1045. ♀ ad. „ Aug. 14, 1905.

No. 1452. ♀ ad. River Ja, Feb. 22, 1906.

No. 1559. ♀. „ March 16, 1906.

No. 1629. ♂ ad. „ March 29, 1906.

No. 2013. ♀ ad. Bitye, River Ja, Oct. 28, 1906. Small egg in ovary.

No. 2069. ♂ ad. Bitye, River Ja, Nov. 15, 1906. Testes very small.

[A common little bird at the Ja, often seen sitting silent and motionless on a bare twig, preferably on the tip of an upright dead branch, like the knob on the top of a flagstaff, flying out occasionally after a passing insect and returning again. It builds in abandoned nests of the Weavers, *Heterhyphantes nigricollis* and *Hyphantornis cucullatus*. I have been shown several nests in such situations with a slight lining of fine plant-fibres inside the larger structure. Specimen No. 1559 (a sitting female) and the two little nestlings, No. 1555, were shot or taken in such nests; and I have seen a pair of the little Flycatchers entering an old Weaver's nest with building-material. The eggs have been found, and are of a plain terra-cotta colour, rather long, measuring 20 or 21 mm. × 13 mm.; only two are laid. The bird has been found breeding in December, in February, in March, and in June.

This species had never been obtained at Efulen till 1905.—G. L. B.]

163. CHLOROPETA BATESI.

Chloropeta batesi Sharpe, Ibis, 1905, p. 468.

No. 1395. ♂ ad. River Ja, Feb. 7, 1906.
No. 1439. ♂ ad. ,, Feb. 18, 1906.
No. 1472. ♂ ad. ,, Feb. 27, 1906.
No. 1539. ♂ ad. ,, March 12, 1906.
Nos. 1760, 1818. ♂ ad. River Ja, June, 13, 30, 1906. Testes large.

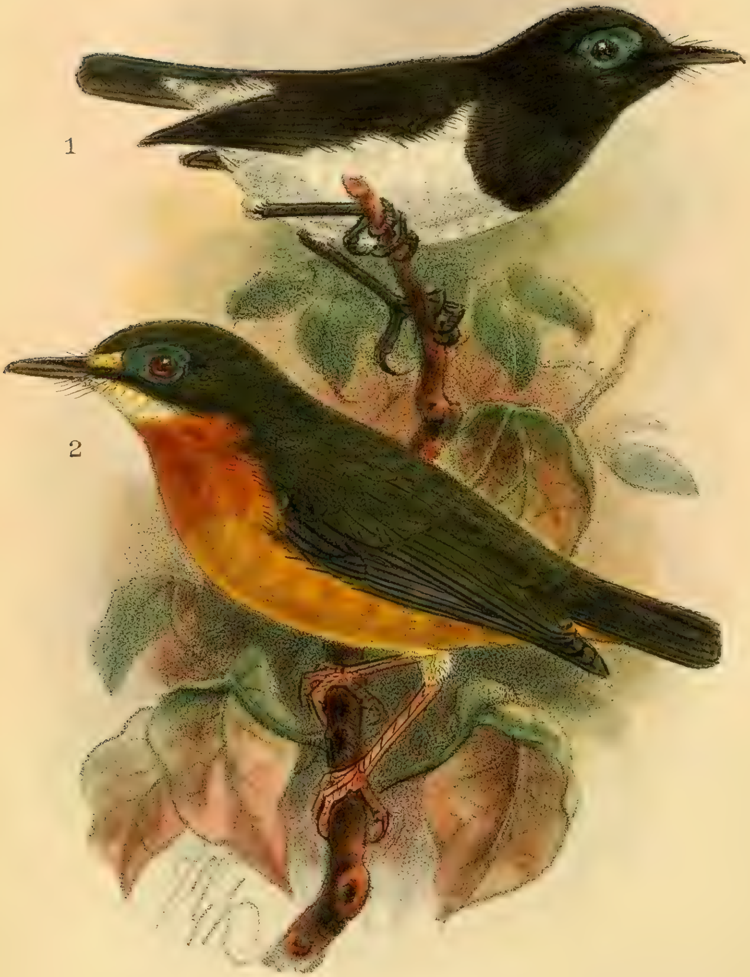
These specimens agree with the types described by me (*l. s. c.*).

164. DIAPHOROPHYIA CASTANEA.

Diaphorophyia castanea (Fraser); Sharpe, Ibis, 1904, p. 625; 1905, p. 468.

No. 733. ♂ ad. Efulen, June 6, 1905.
No. 743. ♀ ad. ,, June 8, 1905.
No. 807. ♂ juv. ,, June 26, 1905.
No. 815. ♂ ad. ,, June 28, 1905.
No. 866. ♀ ad. ,, July 10, 1905.
No. 890. ♂ ad. ,, July 12, 1905.
No. 988. ♂ imm. ,, July 28, 1905.

Ibis. 1907. Pl. X.



West, Newman imp.

1. DIAPHOROPHYIA CHLOROPHRYS.
2. D. ANSORGEI.

No. 1419. ♂ ad. River Ja, Feb. 15, 1906.
No. 1604. ♂ ad. „ March 25, 1906.
Nos. 1793, 1794. ♀ ad. River Ja, June 23, 1906.
[Obtained in the Zima Country.—G. L. B.]

165. DIAPHOROPHYIA CHLOROPHRYS. (Pl. X. fig. 1.)

Diaphorophyia chlorophrys Alexander; id. Ibis, 1903, p. 384; Sharpe, Ibis, 1905, p. 469.

No. 1467. ♂ juv. River Ja, Feb. 25, 1906. Testes very small.

Nos. 1557, 1558. ♂ ♀ ad. River Ja, March 16, 1906. Eggs being formed in female.

No. 1565. ♂ ad. River Ja, March 17, 1906.

Nos. 1575, 1576. ♂. River Ja, March 20, 1906. Testes large.

No. 1799. ♂ ad. River Ja, June 25, 1906. Testes large.

No. 1838. ♂ ad. River Ja, July 10, 1906. Testes large.

No. 2015. ♂ ad. Bitye, River Ja. Oct. 28, 1906. Testes large.

No. 2065. ♀ ad. Bitye, River Ja, Nov. 12, 1906. Ovary granular.

The young bird is browner above and not so green, but the throat seems to have been chestnut with a number of green feathers appearing.

166. DIAPHOROPHYIA ANSORGII. (Pl. X. fig. 2.)

Diaphorophyia ansorgei Hartert, Bull. B. O. C. xv. p. 74 (1905).

No. 1444. ♀ ad. (eggs forming). River Ja, Feb. 20, 1906.

This species had been previously recorded only from Angola.

167. PLATYSTIRA CYANEA.

Platystira cyanea (P. L. S. Müll.); Sharpe, Ibis, 1905, p. 469.

Nos. 1435, 1457. ♂ ad. River Ja, Feb. 18, 23, 1906.

No. 1484. ♀ juv. River Ja, March 1, 1906. Ovaries very small.

No. 1572. ♂ ad. River Ja, March 19, 1906. Testes large.

No. 2063. ♀ ad. Bitye, River Ja, Nov. 12, 1906. Ovary granular.

No. 2072. ♂ ad. Bitye, River Ja, Nov. 16, 1906. Testes small.

No. 2119. ♀ ad. Bitye, River Ja, Dec. 5, 1906. Small ova in ovary.

[This bird is common at the Ja and on the coast, but is less so in the strictly forest-country between, for its resort is the neighbourhood of villages. It attracts attention by its appearance, on account of the red wattle over the eye, which in life is very conspicuous. Its little song is very noticeable also, because of the wide difference in pitch of the four notes which compose it. A musical friend has told me what notes of the scale it sings, but I have forgotten them. It has the same habit as *Diaphorophyia castanea* (see 'Ibis,' 1905, p. 94) of making a sharp flapping sound with its wings as it flies. This is done but occasionally, evidently to attract attention, and perhaps only by the male.—G. L. B.]

168. Bias musicus.

Bias musicus (V.); Sharpe, Ibis, 1904, p. 626.

No. 1237. ♂ ad. River Ja, Jan. 3, 1906. Testes small.

No. 1795. ♂ juv. „ June 23, 1906.

No. 2123. Pull. Bitye, River Ja, Dec. 10, 1906.

The nestling is rufous like the old female, but is mottled with whitish longitudinal centres to the feathers of the upper surface, which have also black margins. The crown and sides of face are black with rufous margins to the feathers; the under surface is white, with a faint tinge of cinnamon-buff.

The young male is also similarly coloured and mottled, shewing that the first plumage resembles that of the adult female, and is not black.

169. MEGABIAS ATRILATUS.

Megabias atrilatus (Cass.) ; Sharpe, Ibis, 1904, p. 626.

No. 1638. ♀ ad. River Ja, March 30, 1906.

170. SMITHORNIS CAMERUNENSIS.

Smithornis camerunensis Sharpe, Ibis, 1905, p. 469.

No. 1142. Ad. River Ja. Skinned by a native during my absence.

No. 1345. ♂. River Ja, Jan. 22, 1906.

No. 1513. ♂ ad. River Ja, March 7, 1906. Testes large.

Nos. 1505, 1514, 1569. ♂ ♀ ad. River Ja, March 6–22, 1906.

No. 1860. ♀ ad. River Ja, July 26, 1906.

No. 2081. ♂ ad. Bitye, River Ja, Nov. 19, 1906. Testes small.

The first specimen sent by Mr. Bates was a female, and I supposed it to be the female of a form allied to *S. rufilateralis.* The acquisition of the male bird shews that I was quite mistaken in this surmise, and that the species is a form of *Smithornis capensis,* but quite distinct from that species. It is distinguished by its black ear-coverts, and by the broader and much blacker stripes on the under surface.

[The female specimen, No. 521, which is the type of this species ('Ibis,' 1905, p. 469), was caught at evening in a nest. This was an exquisite little hanging pocket-shaped structure, and was found in the bushes on waste ground not far from the village. There were three very young birds in it, besides the mother. This was in May. Specimens since obtained in March were breeding.

A nest similar to the one mentioned above, belonging to *Smithornis zenkeri,* has already been described in the note on that bird ('Ibis,' 1905, p. 95). In the same note there is mentioned the rattling noise made by the two species of *Smithornis* which I then knew. *S. camerunensis* makes the same noise. It seems to be produced mechanically while the bird is taking a short circuit-flight, as it is never heard when the bird is at rest.

S. camerunensis, which I have found only at the Ja, is a bird of the bushes in open country. *S. zenkeri* and *S. rufilateralis* are denizens of the forest, and have been found both at Efulen and at the Ja.—G. L. B.]

171. SMITHORNIS ZENKERI.

Smithornis zenkeri Reichenow; Sharpe, Ibis, 1904, p. 627.

No. 1224. ♂ ad. River Ja, Jan. 1, 1906.

No. 1327. ♂ ad. „ Jan. 18, 1906. Testes rather large.

Nos. 1486, 1566. ♀; 1584. ♂ ad. River Ja, March 2–21, 1906.

Nos. 1788, 1797. ♂ ad. River Ja, June 21–24, 1906.

172. SMITHORNIS RUFILATERALIS.

Smithornis rufilateralis Gray; Reichenow, Vög. Afrikas, ii. p. 471 (1903).

Nos. 1085, 1091. ♂ ♀. Zima Country, Oct. 8, 1905. In the female the eggs were just beginning to be formed, according to Mr. Bates. The head is browner, and there are not so many black streaks as in the typical specimen, which, from its blacker head, seems to me to be very probably a young male, rather than a female. The tips to the coverts are rufescent and not white as in typical *S. rufilateralis*.

No. 1485. ♂ ad. River Ja, March 9, 1906. Testes rather large.

No. 1588. ♂ ad. River Ja, March 22, 1906.

Nos. 1926, 1927. ♂ ♀ ad. 25 miles from Kribi, Sept. 8, 1906.

No. 1978. ♀ ad. River Ja.

173. ARTOMYIAS FULIGINOSA.

Artomyias fuliginosa Verr.; Sharpe, Ibis, 1905, p. 470.

Nos. 776, 777. ♂ ad. et juv. Efulen, June 13, 1905.

No. 830. ♂ ad. Efulen, July 3, 1905. Testes very small.

No. 1131. ♂. Zima Country, Oct. 13, 1905.

No. 1836. ♂ imm. River Ja, July 9, 1906. Testes small.

Nos. 2056. ♀ ad.; 2080, 2102. ♂ ad. et juv. Bitye, River Ja, Nov. 5–29, 1906.

The young bird is spotted and banded with whitish tips to the feathers. It is slightly older than that described by me (*l. c.*).

174. ERYTHROCERCUS MACCALLI.

Erythrocercus maccalli (Cass.); Sharpe, Ibis, 1904, p. 628.

No. 802. ? ♀. Efulen, June 24, 1905.

Nos. 1510. Juv.; 1511. ♂ ad. River Ja, March 7, 1906.

No. 1520. ♀ ad. River Ja, March 8, 1906.

No. 1626. ♀ ad. ,, March 29, 1906.

No. 1803. ♂ ad. ,, June 26, 1906. Testes small.

The female has not the chestnut crown of the male, but the fore-part of the head is dingy brown.

[This smallest of the Flycatchers has not the manner of catching insects which is characteristic of the family. Instead of sitting on the watch, solitary and silent, the little *Erythrocercus* goes in small companies of three or four or half a dozen, flitting busily from twig to twig of the great trees of the forest in search of insects, making all the while a lively twittering.—G. L. B.]

175. TROCHOCERCUS NITENS.

Trochocercus nitens Cass.; Sharpe, Ibis, 1904, p. 629.

No. 789. ♀ juv. Efulen, June 16, 1905.

Nos. 837, 898. ♂ ad. et juv. Efulen, July 3, 14, 1905.

No. 1007, 1012. ♂ ♀ juv. Efulen, Aug. 5, 7, 1905.

No. 1062. ♂ juv. Efulen, Aug. 17, 1905.

No. 1083. ♂ juv. Zima Country, Oct. 8, 1905.

No. 1362. ♂ ad. River Ja, Jan. 25, 1906.

No. 1526. ♂ ad. ,, March 9, 1906.

No. 1487. ♀ ad. ,, March 3, 1906.

No. 1526. ♂ ad. ,, March 9, 1906.

No. 1863. ♂ ad. ,, July 26, 1906.

It should be noted that in the birds from the River Ja the female differs from the male in having no black on the throat, this part being grey, only a little lighter than the rest of the under surface. Dr. Reichenow has described the female in the same terms, so that some of the specimens alluded to as young birds may be adult females.

176. TCHITREA VIRIDIS.

Tchitrea viridis (P. L. S. Müll.); Sharpe, Ibis, 1905, p. 470.

No. 744. ♀ ad. Efulen, June 8, 1905.

No. 1123. ♂ ad. Zima Country, Oct. 12, 1905. Testes rather large.

No. 1364. ♂ imm. River Ja, Jan. 25, 1906.

No. 1429. ♀ ad. ,, Feb. 17, 1906.

No. 1448. ♂ ad. ,, Feb. 21, 1906.

No. 1628. ♂ ad. ,, March 29, 1906.

No. 1644. ♂ ad. ,, April 1, 1906.

[In my note on this bird ('Ibis,' 1905, p. 95) I described its little cry, but did not then know its song, or rather supposed it to be made by another species, though it is one of the commonest of bird-sounds. This song, or rather unmusical attempt at a song, is a monotonous repetition of four notes in the same key, and is uttered with emphasis and persistence by the white-plumed male bird, in the bushes behind the very houses of the village, especially early in the morning.

I have now found nests of *Tchitrea viridis* with eggs, or, rather, with one egg in each. I think, at least, in many cases, that only one is laid. It is pinkish white with brown speckles, from 18 to 20 mm. long and 14 mm. wide. That the male is in the habit of helping in the incubation has now been further proved by getting a male specimen in breeding-plumage, shot on the nest.—G. L. B.]

177. TCHITREA TRICOLOR.

Tchitrea tricolor (Fras.); Sharpe, Ibis, 1905, p. 630.

No. 788. ♂ ad. Efulen, June 15, 1905.

No. 880. ♀ imm. ,, July 11, 1905. Eggs forming.

No. 891. ♂ ad. ,, July 12, 1905.

No. 1054. ♀ ad. ,, Aug. 15, 1905.

No. 1094. ♂ ad. Zima Country, Oct. 9, 1905. Testes very large.

No. 1102. ♀ imm. Zima Country, Oct. 10, 1905. Eggs forming.

No. 1371. ♂ ad. River Ja, Jan. 27, 1906. Testes large.

No. 1923. ♂ ad. 25 miles from Kribi, Sept. 5, 1906.

Nos. 1929, 1970. ♀ ad. 25 miles from Kribi, Sept. 11, 24, 1906.

As a rule, *T. tricolor* can be distinguished from *T. rufo-cinerea* by its grey tail, which resembles the back. *T. rufo-cinerea* has a red tail, and at first sight the two species look distinct enough.

I have before me, however, *grey*-tailed birds (i. e., *T. tricolor*) which have a great deal of grey overspreading the throat and breast, though the under tail-coverts are bright chestnut. The full-plumaged male has a blackish throat and the rest of the under surface bright chestnut from the lower throat downwards. In three females the breast and abdomen are cinnamon or light chestnut, while the grey colour occupies the throat, and in two of them spreads over the chest and flanks. A male is almost entirely blue-grey beneath, save for the chestnut under tail-coverts.

When the grey colour is seen on the under surface the bird would be indistinguishable from *T. rufo-cinerea* but for the red back and tail of the latter. I confess that I cannot follow all the plumages of *T. tricolor*.

[This bird is less often seen than *T. viridis*, and keeps more to the forest, where it is often a member of the "éjak." The male of this species sits on the eggs. No. 1371, a male with very large breeding-organs, was shot on the nest. The contents and bits of the shell of one egg (possibly two) were stuck to the feathers when it was brought to me. The nest was just like that of *T. viridis*, except that it had a deep base of moss, and that fine rootlets were used, as well as stem-fibres, in its construction.

Birds of this species were found breeding in nearly every month in which it was collected; indeed, the same may be said of the other two species of *Tchitrea*.—G. L. B.]

178. TCHITREA RUFO-CINEREA.

Tchitrea rufocinerea (Cab.); Sharpe, Ibis, 1905, p. 631.

No. 744. ♀ ad. Efulen, June 8, 1905. Eggs forming.

No. 788. ♂ ad. „ June 15, 1905.

No. 820. ♂ ad. „ June 30, 1905.

No. 880, 891. ♂ ♀ ad. Efulen, July 11, 1905.

No. 1054. ♀ ad. Efulen, Aug. 15, 1905.

No. 1097. ♂ ad. Zima Country, Oct. 9, 1905.

No. 1108, 1113. ♂ ad. Zima Country, Oct. 11, 1905.

No. 1121. ♀ ad. Zima Country, Oct. 12, 1905. Ovaries small.

No. 1261. ♂ ad. River Ja, Jan. 7, 1906. Testes very large.

No. 1366. ♀ ad. River Ja, Jan. 26, 1906. Eggs forming.

No. 1503. ♂ ad. „ March 15, 1906. Testes very large.

No. 1616. ♀ ad. River Ja, March 27, 1906.

Nos. 1890, 1900, 1902. ♂ ♀ ad. River Ja, Aug. 7, 9, 13, 1906.

No. 1993. ♂ ad. Bitye, River Ja, Oct. 24, 1906.

All the Zima birds are grey-breasted, but one of them (1097) has a considerable admixture of rufous.

[Two nests known to be those of this bird have been obtained. Specimens No. 1366, a female, and No. 1503, a male with large breeding-organs, were secured on the nest, each sitting on one egg. The egg in both cases was broken. These two nests were very like those of *T. viridis*—cup-shaped, with fine hair-like plant-fibres inside, about 45 mm. wide at the top, interior measurement. They differed from the nests of *T. viridis*, however, in having moss as a portion of the material of the lower part.

The species is found mostly in the forest. It has song-notes similar to those of *T. viridis*.—G. L. B.]

179. ELMINIA LONGICAUDA.

Elminia longicauda (Swains.); Sharpe, Ibis, 1905, p. 631.

No. 816. ♀ pull. Efulen, June 28, 1905.

No. 1183. ♀ ad. River Ja, Dec. 23, 1905. Ovaries small.

No. 1256. ♀ ad. River Ja, Jan. 6, 1906. Ovaries granular.

Nos. 1417, 1418. ♂ ♀ ad. River Ja, Feb. 14, 1906.

The nestling resembles the adult, but is ashy-grey above with a very little blue shade. The under surface is very pale ashy, slightly tinted with blue, with the belly and under tail-coverts whiter. On the head and wings are some pale sandy-whitish edgings to the feathers.

No. 1750. Juv. River Ja, June 11, 1906.

Nos. 2093. ♀; 2094. ♂ ad. Bitye, River Ja, Nov. 24, 1906.

[To the note on this bird already given ('Ibis,' 1905, p. 96) can now be added a description of its exquisite little nest. This is shallow, cup-shaped, and very small—about 40 mm. wide at the top inside and 15 mm. deep. It is made of very fine fibres like those of dry plantain leaf-stalks, coiled around, and held together in a net of fine white gossamer, which also serves to attach the nest to the limb on which it is placed, and to hold a decoration of lichens on the outside of the nest.

This *Elminia,* unlike the species of *Tchitrea,* seems, from specimens thus far examined, to have a distinct breeding-season; breeding-specimens and nests were found in June, while examples shot at the opposite time of the year were not breeding, and no nests were then found.—G. L. B.]

180. Coracina azurea.

Coracina azurea (Cass.); Sharpe, Ibis, 1904, p. 631.

No. 1087. ♂ ad. Zima Country, Oct. 8, 1905. Testes large.

No. 1921. ♂ ad. East of Ebolewo'o, Aug. 20, 1906.

181. Campophaga quiscalina.

Campophaga quiscalina Finsch; Sharpe, Ibis, 1904, p. 632.

No. 1843. ♂ ad. River Ja, July 13, 1906. Testes rather large.

No. 1872. ♀ ad. River Ja, July 28, 1906. Small eggs in ovary.

182. CRINIGER CHLORONOTUS.

Criniger chloronotus (Cass.); Sharpe, Ibis, 1904, p. 632.

No. 1436. ♀ ad. River Ja, Feb. 18, 1906.

183. CRINIGER CALURUS.

Criniger calurus (Cass.); Sharpe, Ibis, 1904, p. 632.

Nos. 794, 805, 809. ♂ ad. Efulen, June 16, 26, 1905.

Nos. 834, 835. ♂ ad. Efulen, July 3, 1905.

No. 1434. ♂ ad. River Ja, Feb. 18, 1906.

Nos. 1537, 1601. ♂ ♀ ad. River Ja, March 12, 24, 1906.

No. 2038. ♀ ad. Bitye, River Ja, Nov. 2, 1906. Small egg in ovary.

184. CRINIGER CABANISI.

Criniger cabanisi Sharpe, Cat. B. vi. p. 83 (1881); id. Hand-l. B. iii. p. 317 (1901).

Phyllastrephus cabanisi Reichenow, Vög. Afrikas, iii. p. 401 (1904).

a. ♂ ad. Benito River, French Congo, Feb. 18, 1901.

No. 792. ♂ ad. Efulen, June 16, 1905.

No. 817. ♂ ad. ,, June 29, 1905.

These specimens differ from a series of *Criniger tricolor* in their larger size (wing 3·4) and slightly duller coloration. The culmen measures 0·9–0·95 inch.

In *C. tricolor* the males have the culmen 0·75–0·8 inch and the females 0·7. I find, however, that these measurements vary a good deal, and a close comparison of a large series will probably end in the uniting of the two forms.

185. BLEDA FLAVIGULA.

Bleda flavigula (Cab.); Sharpe, Hand-l. B. iii. p. 320 (1901).

Phyllastrephus flavigula Reichenow, Vög. Afrikas, ii. p. 395 (1904).

Nos. 1654, 1686. ♂ ad. River Ja, April 1906.

No. 1851. ♂ ad. River Ja, July 20, 1906. Testes large.

No. 2008. ♂ juv. Bitye, River Ja, Oct. 27, 1906. Testes very small.

Nos. 2050, 2084. ♀ ad. Bitye, River Ja, Nov. 5, 19, 1906. Small ova in ovary.

186. BLEDA SIMPLEX.

Bleda simplex (Temm.); Sharpe, Ibis, 1904, p. 632.

Nos. 1496, 1504. ♂ ♀ ad. River Ja, March 4, 6, 1906.

[To the note on this bird already given ('Ibis,' 1905, p. 96) can now be added a description of its nest and eggs. Specimens Nos. 1504 and 1598 were both caught on their nests at evening, in each case two eggs being found under the bird. The nests were shallow and cup-shaped, about 70 mm. wide at the top inside; of rather rude and slight construction, without lining; one was composed of small weed-stems, and the other of the same with dry tendrils intermixed. Each nest was set in the forks of a bush or big half-shrubby weed. The eggs, about 24 × 17 mm. in size, were of a pale ground-tint marked with dark tangled lines of brown, with fainter lines of blue. These wavy and zigzag lines, with dots here and there, look curiously like Arabic writing.—G. L. B.]

187. BLEDA SERINA.

Bleda serina (Verr.); Sharpe, Ibis, 1904, p. 633.

No. 1998. ♀ ad. Bitye, River Ja, Oct. 25, 1906. Small egg in ovary.

No. 2010. ♂ ad. Bitye, River Ja, Oct. 28, 1906. Testes of medium size.

188. BLEDA SYNDACTYLA.

Bleda syndactyla (Swains.); Sharpe, Ibis, 1904, p. 633.

No. 1765. ♀ ad. River Ja, June 14, 1906. Ovary granular.

The under tail-coverts in this specimen are slightly tinged with chestnut.

No. 1904. ♂ ad. River Ja, Aug. 10, 1906. Testes small.

No. 1946. ♂ ad. 25 miles from Kribi, Sept. 20, 1906. Testes small.

[Obtained in the Zima Country.—G. L. B.]

189. BLEDA ALBIGULARIS.

Bleda albigularis (Sharpe); id. Hand-l. B. iii. p. 322 (1901).

Phyllastrephus albigularis Reichenow, Vög. Afrikas, iii. p. 400 (1904).

No. 1218. ♂ ad. River Ja, Dec. 31, 1905.

This specimen is much larger than the type in the Museum. The latter was obtained in Fanti by the late Governor Ussher, and has the wing 2·7 inches long. Mr. Bates's specimen, which is a male, has a wing of 3·4 inches, which is rather a large difference. Two specimens from Milangi and Chiradzulu in Nyasa-land have the wing-measurement 3·8 inches, and are altogether larger in size, though very similar in plumage. Until a large series is obtained, it is somewhat difficult to determine whether these different dimensions indicate different races.

190. Bleda indicator.

Bleda indicator (J. & E. Verreaux); Sharpe, Hand-l. B. iii. p. 322 (1901).

Phyllastrephus indicator Reichenow, Vög. Afrikas, iii. p. 390 (1904).

No. 1018. ♀ ad. Efulen, Aug. 8, 1905. Eggs forming.

No. 1072. ♂ ad. „ Aug. 21, 1905. Testes rather large.

No. 1857. ♂ ad. River Ja, July 24, 1906. Testes of medium size.

Both these birds have dusky spots at the end of the outer tail-feathers, and there seems to be a complete link between *B. batesi* and *B. indicator* in this respect. It is doubtful if the former species can be upheld.

191. Bleda clamans.

Bleda clamans (Sjostedt); Sharpe, Ibis, 1904, p. 634.

No. 1424. ♀ ad. River Ja, Feb. 16, 1906. Eggs forming.

No. 1869. ♀ ad. River Ja, July 28, 1906. Ova in ovary.

Nos. 1918, 1919. ♂ ♀ ad. Lobo River, Aug. 18, 1906.

192. Bleda leucopleura.

Bleda leucopleura (Cass.); Sharpe, Ibis, 1904, p. 635.

No. 1106. ♂ ad. Zima Country, Oct. 11, 1905.

193. BLEDA NOTATA.

Bleda notata (Cass.); Sharpe, Ibis, 1905, p. 471.

No. 762. ♂ ad. Efulen, June 12, 1905.

No. 852. ♀ ad. „ July 6, 1905. Eggs forming.

Nos. 1176, 1192. ♂ ad. River Ja, Dec. 21, 25, 1905.

Nos. 1943, 1944. ♂; 1956. ♀ ad. 25 miles from Kribi, Sept. 19, 20, 1906.

[Obtained in the Zima Country.—G. L. B.]

194. BLEDA TRICOLOR.

Bleda tricolor (Cass.); Sharpe, Ibis, 1904, p. 633.

No. 1133. ♂ ad. Zima Country, Oct. 14, 1905. Testes of medium size.

No. 1636. ♂ ad. River Ja, March 30, 1906.

No. 1637. ♀ ad. „ March 30, 1906. Eggs forming.

No. 1849. ♂ ad. River Ja, July 18, 1906. Testes rather large.

195. BLEDA BATESI.

Bleda batesi Sharpe, Ibis, 1904, p. 634.

No. 1207. ♂ ad. River Ja, Dec. 29, 1905. Testes small.

196. ANDROPADUS EFULENENSIS.

Andropadus efulenensis Sharpe, Ibis, 1904, p. 636.

No. 727. Juv. Efulen, 1905.

Nos. 764, 779. ♂ ad. Efulen, June 10–14, 1905.

No. 1026. ♂ ad. Efulen, Aug. 10, 1905.

No. 1117. Juv. Zima Country, Oct. 12, 1905.

No. 1156. ♂ juv. River Ja, Dec. 17, 1905.

No. 1236. ♀ juv. „ Jan. 3, 1906.

No. 1942. ♀ ad. 25 miles from Kribi, Sept. 19, 1906. Ovary granular.

No. 1980. ♂ juv. Bitye, River Ja, Oct. 18, 1906.

The male shot on the 10th of August has a brighter yellow moustachial streak than is found in the rest of the series, and approaches in this respect the true *A. latirostris*.

197. ANDROPADUS CURVIROSTRIS.

Andropadus curvirostris Cass.; Sharpe, Hand-l. B. iii. p. 323 (1901); Reichenow, Vög. Afrikas, iii. p. 413 (1904).

No. 750. ♀ ad. Efulen, June 9, 1905.

198. EURILLAS VIRENS.

Eurillas virens (Cass.); Sharpe, Ibis, 1904, p. 635.

Nos. 739, 751. ♂ ad. Efulen, June 8, 9, 1905.

No. 843. ♂ ad. Efulen, July 4, 1905.

No. 876. ♀ ad. ,, July 11, 1905.

No. 901. ♀ ad. ,, July 14, 1905.

No. 1127. ♂ ad. Zima Country, Oct. 13, 1905.

Nos. 1149, 1872. ♀ imm. River Ja, Dec. 15, 20, 1905.

No. 4185. ♂ ad. River Ja, Dec. 23, 1905.

No. 1506. ♀ ad. ,, March 6, 1906.

No. 1909. ♀ ad. ,, Aug. 11, 1906. Small ova in ovary.

No. 1982. ♂ ad. Bitye, River Ja, Oct. 18, 1906. Testes small.

199. EURILLAS CAMARUNENSIS.

Eurillas camarunensis (Reichenow); Sharpe, Ibis, 1904, p. 636.

Nos. 1234, 1322. ♂ ♀ ad. River Ja, Jan. 3, 16, 1906.

No. 1456. ♂ ad. River Ja, Feb. 23, 1906.

[Specimen No. 1506 was shot by a boy with an arrow on its nest, which was in a thick growth of tall half-climbing sedge growing mixed with bushes on waste ground near the village. This nest was placed only two or three feet from the ground. It was rather roughly built, shallow, cup-shaped, but thick, and was composed of dried leaves and small stems, with a scanty lining of fine fibres. The diameters at the top inside were 55 and 60 mm. (a little wider one way than the other). Two eggs were in the nest, of a white ground-colour, with brown speckles very dense at the larger end; size 21 × 15 mm.—G. L. B.]

200. EURILLAS GRACILIS.

Eurillas gracilis (Cab.); Sharpe, Ibis, 1904, p. 635.

No. 1127. ♂ ad. Zima Country, Oct. 13, 1905. Testes small.

No. 1160. ♂ ad. River Ja, Dec. 18, 1905.

Nos. 1182, 1185. ♀ juv. River Ja, Dec. 23, 1905.

No. 1283. ♂ ad. River Ja, Jan. 10, 1906.

No. 1321. ♂ ad. „ Jan. 16, 1906.

Nos. 1332, 1333. ♂ ♀ ad. River Ja, Jan. 19, 1906.

No. 1360. ♂ ad. River Ja, Jan. 24, 1906.

Nos. 1491, 1506. ♂ ♀ ad. River Ja, March 3, 6, 1906.

No. 1671. ♂ ad. River Ja, April 12, 1906.

No. 1881. ♂ ad. „ Aug. 2, 1906. Testes very large.

No. 1994. ♀ ad. Bitye, River Ja, Oct. 24, 1906. Egg in ovary.

Nos. 2004, 2020. ♀ ad. et juv. Bitye, River Ja, Oct. 27, 29, 1906. Ovary granular and very small in the adult.

201. STELGIDILLAS GRACILIROSTRIS.

Stelgidillas gracilirostris (Strickl.); Sharpe, Ibis, 1904, p. 637.

Nos. 1384, 1391. ♂ ♀ ad. River Ja, Feb. 2, 4, 1906.

No. 1907. ♂ ad. River Ja, Aug. 11, 1906. Testes large.

202. IXONOTUS GUTTATUS.

Ixonotus guttatus J. & E. Verreaux: Sharpe, Ibis, 1904, p. 638.

Nos. 1331, 1338. ♀; 1352. ♂ ad. River Ja, Jan. 19–23, 1906. Ovaries of the females small and the testes of the male also small.

203. PYCNONOTUS GABONENSIS.

Pycnonotus gabonensis Sharpe; id. Ibis, 1904, p. 638.

No. 1324. ♂ ad. River Ja, Jan. 17, 1906. Testes small.

No. 1478. ♂ ad. River Ja, Feb. 28, 1906. Testes very large.

No. 1733. ♂ juv. River Ja, June 9, 1906. Testes very small.

No. 1911. ♀ ad. River Ja, Aug. 12, 1906. Small ova in ovary.

Nos. 2091, 2100. ♀ ad. Bitye, River Ja, Nov. 24, 1906. Ovary small.

[A somewhat more accurate description of this bird's nest may now be added to the few words given before ('Ibis,' 1905, p. 98). The fine fibres used for the upper part and inside of the nest are taken from the dry stems of plants, and are not grass. The inside diameter of the nest at the top is from 60 to 70 mm., the fabric being not quite circular. The eggs are two or three in number, about 24 × 17 mm. in size, of a white ground-colour, which shews only at the small end, the rest being thickly speckled with brown, while some pale bluish speckles are intermixed. This bird is often seen in the Zima Country.—G. L. B.]

204. PYCNONOTUS VIRIDESCENTIOR.

Pycnonotus viridescentior Sharpe, Ibis, 1904, p. 638.

No. 1646. ♂ ad. River Ja, April 2, 1906.

Nos. 1285, 1355. ♀; 1293. ♂ ad. River Ja, Jan. 10–14, 1906. Ovaries and testes rather small.

No. 1454. ♀ ad. River Ja, Feb. 23, 1906. Eggs forming.

No. 1646. ♂ ad. River Ja, April 2, 1906. Testes rather large.

[To be continued.]

XXII.—*Field-Notes on the* Columba unicincta *of Cassin.*

By DAVID SETH-SMITH, M.B.O.U.

As I believe that very few specimens of the African Pigeon (*Columba unicincta**) are known in collections, and that little or nothing has been recorded of its habits in the wild state, some notes sent home by my brother, L. M. Seth-Smith, from Uganda may be worth publishing. His letter, dated February 14, 1907, is written from the Budongo Forest, near Masindi. He says :—"You may like to have a few notes about *Columba unicincta*, which I have lately had a chance of seeing in some numbers. I shot my first specimen at Entebbe two years ago; it was feeding along with some Green Pigeons (*Vinago calva*). I did not see the bird at the time, but shooting at a Green Pigeon, was lucky enough to bring down an example of this species as well. You identified it as *Columba unicincta* and told me to look out for more. I never saw another specimen in that locality, although I was frequently shooting over the same ground, and I came to the conclusion that it was a forest species (there was much forest in the neighbourhood), and only occasionally came into the open country on the outskirts of the forest.

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* For a description of *Columba unicincta*, see Cassin, Pr. Ac. Nat. Sc. Philad. 1859, p. 143, which is reprinted in B.M. Cat. Birds, vol. xxi. p. 243.

"On February 14th of the present year I again came across this bird, and had a repetition of my first introduction to it. I was travelling along a native track some eight miles west of Masindi when I saw some Green Pigeons fly from a tree just ahead of me, and thinking it probable that some still remained in the tree, took my gun and walked up to the tree and carefully looked for them. At first I could see none, but after straining my eyes for some seconds I observed a movement amongst the leaves and shot, when down fell my second specimen of *C. unicincta*. In this case again there was a strip of forest not far away. A few days later I camped at the edge of the Budongo Forest, some fifteen miles west of Masindi, and here, going out early one morning, I noticed several of these birds flying from the forest to feed—in fact, they appeared to be quite common, feeding morning and evening on the outskirts of the forest on the same trees that the Green Pigeons frequented. Frequently both species feed together. They emerge from the forest soon after dawn, and again at about 4 o'clock in the afternoon, flying very high, almost always quite out of range, and alighting on the top of the highest tree in the vicinity of their feeding-ground. They seem to prefer to pitch on a leafless tree, from which they can survey the country round before coming down to the lower trees on which they feed. I shot most of my specimens by waiting in hiding under some high leafless tree.

"Their food, at this time of the year at least, consists entirely of the berries of a tree called by the natives 'Musasa,' a very common tree throughout the Protectorate. I have never seen these birds in flocks; they fly in twos and threes.

"I moved to another point on the outskirts of the forest, where, however, I only camped for one day. Here I found a number of Mikindu palms, and again met with *C. unicincta.* I asked the natives where they nested and they said 'in the Mikindus,' which I think very probable: I hope to verify the fact soon. I have not heard the note of this species yet.

"The natives say that these birds do not come to the shambas to eat the corn, and as very few of the inhabitants seem to know them, I think this is most probable, because if they ate the crops all the natives would recognise them well enough. I have so far found nothing but berries in the crops of those that I have examined."

My brother has sent home five very good specimens in addition to the one which I received from him in 1905 (see Bull. B. O. C. vol. xv. p. 75). Four of these, two males and two females, are adults, while the fifth, shot in the Budongo Forest on Feb. 22, 1907, is an immature male just commencing to assume the adult plumage. The immature plumage of this species has never, I believe, been described, so the specimen is of considerable interest. It has, however, partially assumed the adult dress; nevertheless, from the juvenile feathers that still remain, we may form a good idea of the immature stage.

The general colour is grey, striped and mottled with black, chestnut, and white. The top of the head has each feather minutely striped with blackish and tipped with rufous brown or whitish; the feathers of the nape and mantle have towards the tip a narrow line of blackish fringed with white; the rump and upper tail-coverts are grey, fringed with white, the lesser wing-coverts becoming black towards the tip and being broadly tipped with chestnut-brown; the primary-coverts are the same, but with a narrow fringe of white in addition to the chestnut; the primaries and secondaries are dark blackish grey as in the adults, but fringed at the tips with white; the tail is as in the adult, but narrowly fringed with white. The breast is pale buff, striped with blackish; the flanks are grey, fringed with buffish white. "Naked skin round eye grey, inclining to purplish."

In the adult specimens the only sexual difference that I can find is in the colour of the breast. In the male this is bright vinaceous, while it is much duller and has a leaden-blue tinge in the female.

XXIII.—*Notes on the Red-tailed Bush-Lark* (Mirafra erythropygia)[*]. By A. L. Butler, Superintendent of Game-Preservation, Sudan.

On a recent journey in the Bahr-el-Ghazal Province of the Anglo-Egyptian Sudan I saw a great deal of this little-known Lark, and venture to offer some observations on it.

The Red-tailed Bush-Lark is quite a common bird along the Pongo River, on open patches in the forest-country between the Pongo and Chak Chak, on the plains along the Chell River, and on the grassy "khors" which intersect the forest between Chak Chak and Dem Zubeir.

I brought back the following specimens:—

a. ♂ (breeding). 3.2.07. 20 miles E. of the Pongo.
b. ♂ (apparently breeding). 5.2.0.7. Pongo River.
c. ♂ (not breeding). 5.2.07. Pongo River.
d. ♂ " 5.2.07. " "
e. ♂ " 5.2.07. " "

I first met with the species on February 2nd, 1907, while on the march between Kuanga's village and the Pongo, when my attention was attracted by a dark-coloured Lark-like bird which rose from the top of one of the trees scattered over the plain, soared singing into the air for forty or fifty yards, and after a minute or two descended again to the perch from which it started.

Through glasses I watched it repeat this performance several times, and then, concluding that, whatever kind of Lark it might be, it was probably a breeding male with a female sitting close at hand, approached the tree and commenced a careful search for a nest in the vicinity. During this the bird, which was very shy, moved off to some other trees, from which it continued to make little soaring song-flights as before. Failing to find a nest, and being compelled to push on, I went in pursuit of the bird, and managed, with considerable difficulty, to get near enough to shoot it. I then saw that I had got the Red-tailed Bush-Lark at last. It proved, as I expected, to be a breeding male, with the testes very largely developed, and I have little doubt that the hen bird was sitting somewhere close by all the time.

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[*] *Alauda erythropygia* Strickl.; Sharpe, Cat. B. xiii. p. 619.

We reached the Pongo at nightfall next day. Close to our camp a few acres of grass and bush were blazing luridly in the darkness. Visiting the spot next morning, I was surprised and delighted to find two or three *hundred* of these Larks collected at the scene of the conflagration, settling on the tree-tops and on the charred bushes, or feeding busily on singed and dead insects among the grass-ashes. On the ground they ran rapidly, and had something of the appearance of large Pipits. Abundant as the birds were, they were exceedingly wild and difficult to approach, and after a considerable—and fruitless—expenditure of ·410 ammunition, I had to send for a 12-bore and some No. 6 cartridges; even then I had some difficulty in obtaining four examples. Never liking to kill a large series of the same bird in the same locality, I contented myself with my five specimens, and subsequently left these Larks alone. It was not until my return that I noticed that all my birds were *males*, and I have since greatly regretted my moderation.

I never saw the birds in such numbers again, but I met with pairs and small parties almost every day afterwards.

On the plain by the Chell River at Chak Chak I watched a male soar to a height of perhaps 1000 ft., singing beautifully all the time. I never saw another mount so high.

In the grassy "khors" between Chak Chak and Dem Zubeir these Larks were common, and here on March 9th

Best* told me that he had found a nest with two eggs, but had left them undisturbed, not collecting eggs himself or knowing that I wanted them. However, he seemed confident that he could find the nest again, as it was among some small tussocks of green grass at the edge of a pool. He said that the bird fluttered off the eggs at his feet, feigning partial disablement. Alas! when we revisited the "khor" together there was more than one pool with short green tussocks near it; Best was uncertain about the exact spot—and consequently the eggs of *Mirafra erythropygia* are still, so far as I know, undescribed!

The flight of these birds is undulating and buoyant, and their wings appear strikingly large and broad when they are passing overhead.

To sum up my field-notes, the Red-tailed Bush-Lark is abundant in the country indicated; it is a bird of powerful flight, probably travelling long distances to water, and rapidly collecting in numbers to follow the track of a grass-fire; it settles a great deal in trees, is on the whole a remarkably shy bird, and appears to breed from January to March, at which season the males sing beautifully while soaring.

Captain Shelley proposes ('Birds of Africa,' iii. p. 15) "the new generic name of *Pinarocorys* for the reception of *Alauda nigricans* Sundev. and *Alauda erythropygia* Strickl., in which the coloured pattern of the wings is very dissimilar in the males and females, and the crown and back uniform in old birds." And again, in his diagnosis of the genus (*op. cit.* p. 71), he says: "full-plumaged birds have the crown and back uniform brown; quills with or without a rufous pattern, and most of the centre ones have broad pale terminal margins, but these strongly marked variations in the colour of the wings are neither seasonal nor specific characters, but apparently denote the sex."

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* Best, whose name will be known to members of the Old Hawking Club, was an English falconer in the service of my companion, Gilbert Blaine. He was very keen on birds, but confined his collecting mostly to the Hawks and to brightly-coloured species.

I do not consider that the alleged sexual differences in the wing-pattern or the unmottled plumage of the back are sufficiently well-established facts to be accepted as generic characteristics, and I prefer to call the bird a *Mirafra.*

Very little appears to be known of the changes of plumage in these two species. As to sexual differences in the wing-pattern, Captain Shelley's own description (p. 74) of "adults" does not bear this out. He describes a ♂, a ♀ juv.?, and a ♀ (of *P. erythropygia*) as having "the outer edges of the quills narrowly edged with buff, with the inner webs nearly of one shade of brown, the pale portions being almost obsolete." He then describes a ♀, a ♂, and a ♀ with "the primaries having nearly the whole of the outer web and the greater portion of the inner web cinnamon, of the same shade as the upper tail-coverts." Wherein, then, lies the *sexual* difference? And it does not seem to be made any clearer in the description of *Pinarocorys nigricans* (p. 72).

In the case of the latter species, the late Dr. Stark ('Fauna of S. Africa: Birds,' vol. i. p. 207) does not mention any sexual differences.

In 'The Ibis' for 1902, p. 292, Capt. Boyd Alexander says: "the adult male of *Mirafra erythropygia* differs from the female in being more rufous on the wings and tail. The primaries are broadly edged with rufous on their outer webs, while the outer tail-feather is entirely rufous."

All of my birds are unquestionably males; one of them was certainly breeding, and another apparently so, though shot from among a large flock. In all five the outer tail-feather has a slanting brown mark occupying the greater part of the terminal half of the inner web.

All of them shew an extremely abraded condition of the plumage of the upper surface. They are practically uniform dark brown above, with the heads slightly darker than the backs, and the centres of the feathers darker than the exposed edges. They have only the narrowest remains of rufous edges to the primaries, which are uniform dark brown above and below.

In my specimen *e* the pale edges of the wing-coverts have practically disappeared; in *a* they remain only on the greater coverts; in *b, c,* and *d* they have suffered less from wear. In all the five specimens the first five or six primaries shew no pale ends, the remaining primaries and outer secondaries are in perfect condition, with broad rufous-white ends. In *c* and *d* the dark markings on the crop are more distinctly in the form of spots than in the other examples, in which the markings are heavier and run more together. On the chest they assume a sharply-defined lanceolate form, and in *a* and *e* these pointed markings extend down the whole centre of the breast; in *b* and *c* there are only a few on the breast, *d* the breast is almost uniform buff, with a strong rufous and in suffusion. The under tail-coverts vary from rufous buff to pure cinnamon.

In the dorsal plumage of specimen *b* I find four or five concealed new feathers, not fully developed, of an ashy black, with broad and distinct rufous margins. Abrasion in this species appears to occur very rapidly, but I do not doubt that the new and perfect dorsal plumage *is ashy black, mottled all over with scale-like edgings of bright rufous.* This, indeed, is how the adult male of *Mirafra nigricans* (in winter plumage) is described by Stark, though this plumage would appear to be assumed by *M. erythropygia* in the *summer.* (It is, by-the-way, a great pity that the dates at which the specimens described, and the specimens recorded from different localities were obtained, are so often omitted in the Bird-volumes of the 'Fauna of South Africa.')

I fear that I have occupied a great deal of space over this one species, but I think that wrong conclusions have been drawn from the limited number of specimens hitherto available for examination, and that this has led to an unsound diagnosis of an unnecessary genus.

In concluding, I would add that the loss of pale margins to the feathers of birds by "abrasion," so complete in *M. erythropygia,* seems to me to be due to the fibre of the feathers being weaker and more perishable in white or slightly pigmented areas, whether these form margins, bars, or spots. This appears to me the only explanation of the vagaries of "abrasion." Restricting the meaning of the word to fair "wear and tear," this certainly would not follow so exactly the boundary-lines of pale margins, serrations, and spots. And yet it is a common thing—especially among small Asiatic Woodpeckers—to find feathers in which pale margins, indentations, and spots have been cut out as cleanly as if eaten by a parasite which preyed on the unpigmented fibre only—the "abrasion" apparently stopping directly the darker colouring is touched.

XXIV.—*On the Tail-feathers of the Grebes.*

By W. P. Pycraft, F.Z.S.

Though it is popularly supposed that, in addition to their many other peculiarities, Grebes are tail-less, it is very difficult to find any definite statements on the matter. References to this point, of a more or less general character, are, however, fairly numerous. And of these the following may serve as instances:—

Dr. Sharpe, in the recent edition of the 'Naturalist's Library' (British Birds), says that the Grebes may be distinguished, among other things, "by their obsolete tail, which is not visible." In Yarrell's 'British Birds' Grebes are said to have "no true tail." Macgillivray writes: "tail a slight tuft of minute downy feathers, scarcely distinguishable." Mr. W. R. Ogilvie-Grant, in the 'Guide to the Bird-Gallery of the British Museum,' describes the tail as "inconspicuous, being a mere tuft of downy plumes."

I have, unfortunately, been unable to make my investigations on this subject as complete as I had hoped to do; and this is because I have had to content myself almost entirely with skins. Of fresh specimens, indeed, I have been able to examine only two examples of the Dabchick (*Tachybaptes fluviatilis*), one of which was kindly furnished by Dr. P. L. Sclater.

I may say at once, that, so far as my researches go, there are no Grebes which are absolutely tail-less, though Mr. W. L. Sclater, relying, no doubt, on previous authorities, in speaking of the Podicipedidæ, states that "the members of this family can be always at once distinguished from all other birds by their curiously lobed toes and by the absence of the rectrices"*.

Whether Dr. Sharpe, in making the statement that the tail-feathers of the Grebes were "not visible" merely meant to imply that these feathers were too small to be distinguished from the rest of the body-feathering, or whether he meant to imply what Mr. Sclater has definitely formulated, I cannot say. But tail-feathers, all the same, are definitely present.

In the Dabchick (*Tachybaptes*), the only Grebe of which I have been able to examine a freshly killed specimen, the feathers are not only extremely short, but they are also degenerate in character and reduced in number; further, they are peculiar in their relation to the supporting pygostyle.

Semiplumous in character—that is to say, the vanes are discontinuous—and not, apparently, exceeding eight in number, they are arranged, not in a continuous series, or, after the fashion of normal tail-feathers, in a close series and lying in the same horizontal plane, but, on the contrary, are set in the form of a horseshoe, of which the free ends are directed upwards, and so lie alternately in relation one to another.

In the matter of length they are not to be distinguished from their respective coverts, and these are barely longer than the normal contour-feathers of this part of the body.

The feathers of *Podicipes griseigena* (text-fig. 29, p. 474) very closely resemble those of *Tachybaptes fluviatilis*, but are somewhat less degenerate, and hence I have chosen to figure them here. The only species of Grebe, so far as I have yet discovered, in which the tail-feathers have more or less completely preserved their normal character—a continuous vane—is *Podicipes rollandi* (text-fig. 30, p. 475). Herein the feathers, though greatly reduced in length, have a perfectly normal vane, thus shewing that the barbules of the feather have preserved their integrity. But from the dried skins which I have examined I have found it impossible to make out, satisfactorily, whether their arrangement with regard to the pygostyle is normal.

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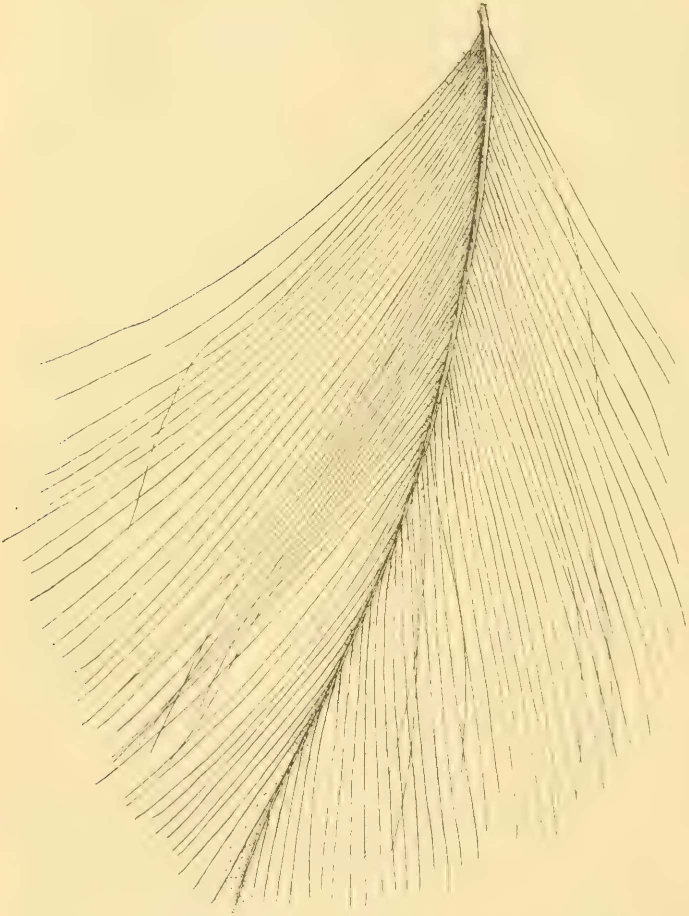
* 'Fauna of South Africa: Birds,' vol. iv. p. 508.

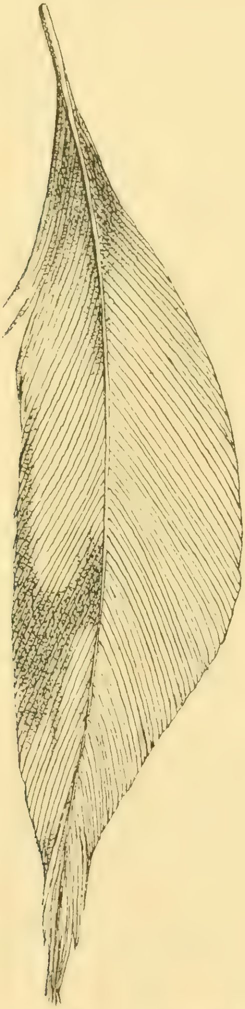
Text-fig. 29.



Tail-feather of *Podicipes griseigena,* shewing the degenerate character of the vane. × 3.

But the main purpose of this short paper is to shew that the Grebes cannot accurately be described as "tail-less,"

Text-fig. 30.



Tail-feather of *Podicipes rollandi*, shewing the continuous vane formed by the interlocking action of the barbules. × 3.

although in some species the tail-feathers are extremely degenerate in character.

In conclusion, I would remark that it would be more correct to use the term "tail-feathers" than "tail," since the tail is really made up in part of the caudal vertebræ and in part of the feathers which those vertebræ support. These caudal vertebræ, as might be expected, are, in the Grebes, degenerate, the pygostyle being reduced to a mere rod.

XXV.—*Proceedings at the Annual General Meeting of the British Ornithologists' Union*, 1907.

The Annual General Meeting of the British Ornithologists' Union for this year was held at the house of the Zoological Society of London, No. 3 Hanover Square (by permission), on May 29th. The Chair was taken by the President, F. DuCane Godman, Esq., D.C.L., F.R.S.

The Minutes of the last Annual General Meeting were read and confirmed.

The Report of the Committee announced the continued prosperity of the Union during the past year, as regards both its membership and its finances.

The volume of 'The Ibis' for 1906 was the sixth and last of the Eighth Series under the joint Editorship of Dr. P. L. Sclater, D.Sc., F.R.S., and Mr. A. H. Evans, M.A. It contained 769 pages and was illustrated by 11 coloured and 10 uncoloured plates. The General Index to the Eighth Series of 'The Ibis' (1901–1906) was also published, and issued separately to the Members at the end of the year.

With regret the Committee reported the deaths of the following Members of the Union since the last Annual Meeting:—

Sir Walter Buller, Mr. J. J. M. Falconer, Mr. G. E. Foster, Mr. Septimus Hedges, Mr. J. T. Stephen, Dr. C. R. Whitty, and Mr. A. F. Wiener.

Nine Members had resigned, and the names of two others had been removed under Rule 6.

At the date of the Meeting the Union consisted of 402

Ordinary, 2 Extra-Ordinary, 9 Honorary, 5 Colonial, and 20 Foreign Members.

The Report having been received, the Meeting proceeded to elect Officers for the ensuing year, and it was announced that Dr. F. DuCane Godman, F.R.S., had been re-elected President, and Mr. Howard Saunders Secretary; also that Mr. Ernest Gibson had been elected a Member of the Committee in the place of Mr. J. Lewis Bonhote, who had retired by rotation.

The following 22 gentlemen were elected Ordinary Members of the Union:—The Hon. Richard Bethell, 30 Hill Street, Mayfair, W.; William Bickerton, The Hawthorns, Marlborough Road, Watford, Herts; John M. Boraston, Ingleside, Stretford, near Manchester; Charles M. Buckley, 14 Hans Crescent, S.W.; Arthur G. Butler, Ph.D., F.L.S., F.Z.S., 124 Beckenham Road, Beckenham, Kent; Edward H. Chapman, 3 Hare Court, Temple, E.C.; Alfonso O. Duke Gandolfi, Ph.D., Blackmore Park, Hanley Swan, Worcestershire; George M. Hedges, 42 Kensington Park Gardens, W.; Francis H. Bulkeley-Johnson, F.Z.S., St. James's Club, Piccadilly, W.; Thomas H. Mann, Hyde Hall, Sawbridgeworth, Herts; Gregory M. Matthews, Langley Mount, Watford; Sheffield A. Neave, Mill Green Park, Ingatestone, Essex; Charles Oldham, Brook Cottage, Knutsford; The Lord William Percy, 2 Grosvenor Place, S.W.; Reginald I. Pocock, F.L.S., F.Z.S., Superintendent of the Zoological Society's Gardens, Regent's Park, N.W.; Herbert W. Richmond, King's College, Cambridge; Archibald T. A. Ritchie, Overstrand, near Cromer; Conrad G. E. Russell, F.Z.S., 2 Audley Square, W.; Geoffrey Schwann, 4 Princes Gardens, S.W.; The Rev. Canon Samuel G. Scott, M.A., The Rectory, Havant, Hants; Dr. Eduard D. van Oort, Museum of Natural History, Leyden, Holland; Rodney C. Wood, 36 Abercorn Place, St. John's Wood, N.W.

Dr. Joel A. Allen, F.M.Z.S., Foreign Member of the Union, was elected an Honorary Member, and Mr. Charles F. M. Swynnerton, Gungunyana, South Melsetter, Rhodesia, a Colonial Member.

A vote of thanks to the Council of the Zoological Society of London for the use of their rooms during the past year was unanimously agreed to.

In accordance with the resolution passed at the last Annual General Meeting, the Committee submitted the following Scheme for the commemoration of the Jubilee of the British Ornithologists' Union in 1908:—

"As the B. O. U. was founded at Cambridge in November 1858 it seems clear that Cambridge would be the most suitable place for the Jubilee Meeting, and November 1908 the most suitable date. The Committee therefore recommend:—

"1. That the Jubilee Meeting (to celebrate the fiftieth Anniversary of the B. O. U. and the completion of the fiftieth volume of 'The Ibis') be held at Cambridge in the beginning of November 1908.

"2. That all Members of the Union at home and abroad be invited to attend it.

"3. That the Members be asked to assemble on one day, and to hold a General Meeting on the next, to be followed by a Dinner.

"4. That, if it can be arranged, the Dinner shall take place in the Hall of Magdalene College, as in November 1858."

This Scheme was approved of, and it was proposed by Mr. H. J. Elwes, seconded by the Hon. Walter Rothschild, and carried:—

> "That it be an instruction to the Committee to prepare a short account of the foundation of the Union and of the work of the early Members, and that this be illustrated by photographs of the Members included, and be published in the fiftieth volume of 'The Ibis.'"

A hearty vote of thanks to the Chairman closed the Meeting.

XXVI.—*Notices of recent Ornithological Publications.*

[Continued from p. 363.]

48. '*Annals of Scottish Natural History.*'

[The Annals of Scottish Natural History. Nos. 61 & 62, January and April 1907.]

Mr. W. Eagle Clarke begins the annual volume with details of the acquisition of an example of the Siberian Chiffchaff (*Phylloscopus tristris*) at the Sule Skerry lighthouse, 33 miles west of Orkney, on the night of September 23rd, 1902. Having been sent in methylated spirits, this addition to the list of wanderers to the British Islands was not immediately examined and identified. Mr. Norman B. Kinnear (a grandson, we believe, of that distinguished naturalist Sir William Jardine) follows with the first portion of some notes on the Birds seen in the Outer Hebrides during the spring of 1906, of which the conclusion is given in the April number (pp. 81–85). The identification, by the author and his companion Mr. Bahr, of a solitary Ptarmigan on the low-lying portion of South Uist, recalls the statement of John MacGillivray in 1841 that the species was then found in that island on Ben More and Hecla; in fact, as we are now told, birds were seen on the latter as recently as 1900. Of considerable interest is a paper by Mr. J. Tomison, Principal Light-keeper at Skerryvore, on the birds observed at that dangerous reef; but the duplication of the record of the Yellow-browed Warbler (p. 25 and p. 51) may involve some compiler in confusion. The April number also contains Mr. Eagle Clarke's second paper on the birds of Fair Isle, and the merits of that small and detached spot as an observatory are extolled: but the Red-rumped Swallow and other rarities have been already enumerated in his first paper as well as noticed in our pages (*supra*, p. 198). In the Zoological Notes, Mr. E. T. Clarke, a taxidermist of Cheltenham, records a pair of Rustic Buntings sent to him from Learney, Torphins, Aberdeenshire, as long ago as April 9th, 1905, but unchronicled till now. In Benbecula, Outer Hebrides, an American Wigeon was shot on

January 3rd, and has been presented to the Natural History Museum, South Kensington. Mr. W. Steuart Menzies states that in Moray he is "now trying to acclimatise Norwegian Rype or Willow-Grouse, which, if successful, may possibly cross with our red grouse." Quite so: and, if he is successful in the attempt, he may destroy the characteristics of our insular form.—H. S.

49. '*The Auk.*'

[The Auk. A Quarterly Journal of Ornithology. Vol. xxiv. Nos. 1 & 2, January and April 1907.]

Mr. C. W. Beebee has a paper of general interest on the behaviour and intellectual development of two chicks of the Great Northern Diver, from the time of hatching until their deaths on the twelfth day, due to a sudden fall in temperature. The conclusions, drawn from the author's observations, are too valuable to be given in abstract, and should be read in their entirety. Mr. Ruthven Deane sends a third instalment of correspondence between Audubon and Spencer F. Baird, extending from 1842 to April 24th, 1847. Mr. James H. Fleming, whose Water-birds of Toronto, Canada, we noticed in a former issue (*suprà*, p. 200), now contributes a paper on the Land-birds of that area, raising to 200 the total of ascertained species: the Passenger-Pigeon being announced as undoubtedly extinct! A report is given of the 24th Congress of the A. O. U., held last November, and, apart from subjects of local interest, the somewhat belated record of a male example of our Teal near Portland, Maine, in April 1903, closes the January number. More than our fair share of obloquy awaits us in April, for under the American name of "English" Sparrow, Mr. A. H. Estabrook makes a vehement but thoroughly justifiable onslaught upon *Passer domesticus*, winding up with "a recommendation to have the whole country do this extermination, now, at once, and all over the United States." This is "thorough," but on our side of the water the Sparrow is in no danger, for there are sentimentalists who are ready to interfere on behalf of this bold robber and expatriator of useful species. Plate iii. is a curious tripartite representation of the Marbled Godwit on its breeding-grounds; and in pl. iv. Mr. Allan Brooks (son of a former M.B.O.U., we believe) gives a pretty illustration of a hybrid between Richardson's Grouse and the Sharp-tailed Grouse. Mr. Witmer Stone (pp. 189–199) has a paper on "Some Changes in the Current Generic Names of North-American Birds"; the changes in many cases upsetting the nomenclature familiar to us. For the full advantage to be derived from this paper, it should be studied along with Dr. J. A. Allen's "The First Species Rule for Determining Types of Genera—How it works in Ornithology" (Science, n. s. xxv. pp. 546–554), and "The Types of the North-American Genera of Birds" (Bull. Am. Mus. N. H. xxiii. pp. 279–384).—H. S.

50. '*The Avicultural Magazine.*'

[Avicultural Magazine. The Journal of the Avicultural Society. New Series. Vol. v. No. 5. London: March 1907.]

This number contains only three principal papers, the first by Capt. B. R. Horsbrugh on *Otis cærulescens* (pl.), the second by Mr. R. Phillipps giving further notes on the Regent Bird, and the third by Mr. Meade-Waldo entitled "Some Remarks on Birds seen during the Cruise of the 'Valhalla,' R.Y.S." No special remarks seem necessary, but attention may be drawn to the picture of several specimens of Abbott's Ibis on Aldabra, accompanying the last article.

51. *Balducci on the Sternum in Italian Birds.*

[Morfologia dello sterno degli Uccelli Italiani d. prof. dott. Enrico Balducci. Roma, 1906. (Boll. Soc. Zool. Ital. pp. 10.)]

Prof. Balducci is planning the preparation of a general work on the sternum in Italian Birds, which will be useful when complete. The present fragment relates only to the Owls, and contains mainly measurements and outline figures of the sterna of the ten Italian species.

52. *Beebe on 'The Bird.'*

[The Bird, its Form and Function. By C. William Beebe. With over three hundred and seventy illustrations, chiefly photographed from life by the Author. Westminster: Constable & Co., Ltd., 1907. Price 14*s.* net.]

Many of our readers are, no doubt, acquainted with Mr. Beebe's attractive account of his expedition to Mexico in search of birds in 1903–4, entitled 'Two Bird-lovers in Mexico'*. We have now before us another volume, not less interesting to the Ornithologist, but more severe in character, in which the author deals with his favourite subject as a whole, under the simple designation of 'The Bird,' calling it "an untechnical study of the bird in the abstract." Mr. Beebe intends his book as an invitation "for each to observe for himself the marvellously fascinating drama of evolution: to pass on from the nature-stories of idealised composite animals to the consideration of the evolution of all life; and to the tales of time and truth which have been patiently gleaned by the life-long labours of thousands of students." This is perhaps rather "tall writing," but our author explains 'the Bird' and all that relates to it in a series of simply written essays, which anyone can understand. and illustrates his statements by a large number of photographic text-figures, many of which are excellent, though some might be improved upon.

Mr. Beebe first discusses the extinct species of former geological epochs, as everyone interested in Ornithology should know something about the extraordinary forms of bird-life that existed in past ages. But he passes on quickly to the birds of the present day and describes their feathers, framework, organs of nutrition, muscles, and nerves in a series of chapters which shew at once that he is master of every part of his subject. This is, indeed, what we might have expected, for the author is not only an experienced student of Ornithology, who has devoted his life to the subject, but is also head of the bird-department in the famous Zoological Park of New York.

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* See 'Ibis,' 1906, p. 580.

We can, therefore, conscientiously recommend Mr. Beebe's work to those who are anxious for condensed information on the general characters and structure of 'The Bird,' and we can truly say there is no other publication with which we are acquainted that contains such information in so readable a form and is so profusely equipped with appropriate illustrations.

53. *Beebe on Swans.*

[The Swans. By C. William Beebe. Reprinted from the Tenth Annual Report of the New York Zoological Society. 26 pp. 8vo.]

Mr. Beebe has taken the opportunity of examples of all the certainly known species of Swans being exhibited in the Zoological Park of New York to prepare a nicely written essay on these ornamental birds, which fully deserve all the praise that he accords to them. It is illustrated by good text-figures, by the aid of which the seven species may be easily recognised. Mr. Beebe's statements about the different forms are, we believe, generally well founded, though we should hesitate to place entire faith in the story of the "dying Swan's song" given on page 8. Mr. Beebe assumes that the so-called *Cygnus davidi* of North-east China is only "a variant" of *Cygnus bewicki.* But this is by no means certain, and it is quite possible, we think, that it may still turn out to be a good species, especially considering what Prof. Giglioli has written on the subject.

54. *Berlepsch on new Neotropical Birds.*

[Descriptions of new Species and Conspecies of Neotropical Birds. By Hans, Graf von Berlepsch. Ornis, xiv. p. 347.]

Graf v. Berlepsch described at the recent meeting of the International Ornithological Congress thirty new species and conspecies of Neotropical Birds, chiefly based on specimens in his own Collection. They are called *Heleodytes harterti* (Colomb. occ.), *Basileuterus bivittatus chlorophrys* (Æquat. occ.), *Calospiza formosa sincipitalis* (Brasil. centr.), *Phœnicothraupis rubica amabilis* (Bolivia), *Chlorothraupis carmioli frenata* (Peruv. orient.), *Sycalis goeldii* (Amaz. inf.), *Phrygilus alaudinus excelsus* (Bolivia alta), *Poospiza hypochondrica affinis* (Tucuman), *Agriornis livida fortis* (Patagonia orient.), *Myiotheretes striaticollis pallidus* (Tucuman), *Ochthœca leucophrys tucumana* (Tucuman), *O. polionota pacifica* (Bolivia), *Todirostrum hypospodium* (Colomb.), *T. schulzi* (Bras. bor.), *Idioptilon** *rothschildi* (Cayenne), *Pogonotriccus venezuelanus* (Venezuela), *Mecocerculus hellmayri* (Boliv.), *Tyranniscus petersi* (Venezuela), *Capsiempis leucophrys* (Colomb.), *Cotinga simoni* (Colomb. occ. merid.), *Synallaxis fuscipennis* (Boliv.), *Siptornis baeri* (Argent. occ.), *S. sordida affinis* (Tucuman), *Thripadectes bricenoi* (Merida), *T. sclateri* (Colomb. occ. merid.), *Philydor colombianus bolivianus* (Boliv.), *Thamnophilus heterocercus* (Boliv.), *T. dinellii* (Tucuman), *T. connectens* (Boliv. orient.), and *Nothoprocta ornata rostrata* (Tucuman).

Cotinga simoni, a southern representative of *C. ridgwayi* of Costa Rica, was discovered by Gustav Hopke at S. José Dagua, in South-western Colombia.

55. *Berlepsch's Studies on the* Tyrannidæ.

[Studien über Tyranniden. Von Hans, Graf von Berlepsch. Proc IVth Intern. Orn. Congress, p. 463.]

It is good news that Graf v. Berlepsch, as he tells us, has taken up the special study of the Tyrannidæ, one of the most difficult groups of the Neogean Ornis, and is proposing to make them the subject of a monograph. No Ornithologist knows the Tyrannidæ better, or has a richer collection of them at his command.

In the present memoir the Count discusses the genera, one after the other, nearly as arranged in the 14th volume of the 'Catalogue of Birds' (prepared by Sclater in 1888), and gives notes on each of them, correcting former errors and adding remarks on recently described species.

Knipolegus aterrimus heterogyna (from Peru) is described as a new subspecies, and two new generic names are proposed—*Xanthomyias* (type *Muscicapa virescens* Temm.) and *Oreomyias* (type *Pogonotriccus plumbeiceps* Lawrence).

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* *Idioptilon*, gen nov. Tyrannidarum.

Some reference to Lillo's *Pseudocolopterus dinellianus* (which is not known to the Count) may probably be found in that writer's article on the birds of Tucuman which we noticed in 1903 ('Ibis,' 1903, p. 422).

56. *Berlepsch on the Genus* Elainea.

[On the Genus *Elainia* Sund. By Hans, Graf von Berlepsch. Proc. IVth Intern. Orn. Congress, p. 372.]

As a solid contribution to his promised monograph of the Tyrannidæ, Graf v. Berlepsch presents us with an elaborate essay on the numerous and complicated species of the genus *Elainea* *.

After short disquisitions on the natural position, distribution, habits, and nesting of these birds and a complete list of the literature of the subject, the author reviews the 39 species recognised by him. The following species and subspecies have new names:—*E. martinica caymanensis* (Grand Cayman Isl.), *E. m. complexa* (Cayman Brac), *E. m. remota* (Cozumel Isl.), *E. pelzelni* (Rio Negro), *E. brachyptera* (Colomb.), *E. obscura tambillana* (N. Peru), *E. gaimardi guianensis* (Guiana), *E. g. bogotensis* (Colomb.), and *E. viridicata delicata* (Bahia). A key for the more ready determination of the species follows, then a table of their distribution, next a list of the species which have been erroneously referred to the genus, and lastly a list of those that are represented in the author's collection. This is indeed a good piece of work. We wish that all other essays of the sort were equally complete.

57. *Bickerton on the Birds of Hertfordshire.*

[Notes on Birds observed in Hertfordshire during the Year 1906. By William Bickerton. Trans. Hertfordsh. N. H. Society, xiii. p. 49 (1907).]

Mr. Bickerton is able to add only one species to the list of Hertfordshire Birds in 1906. This is Leach's Petrel (*Oceano-*

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* The author writes this word "*Elainia*," but there can be no question that, its derivation being ἐλαιvέος (*oleagineus*), it is more correctly spelt "*Elainea*," as suggested by Cabanis and Heine. We cannot allow that errors ought not to be amended. See our author's remarks on this point (footnote, *op. cit.* p. 383).

aroma leucorrhoa), an example of which was found in Cassiobury Park in November last. A still more interesting fact for Ornithologists is the reappearance of the Bearded Titmouse (*Panurus biarmicus*) in Hertfordshire in January 1905, the last specimen previously recorded having been met with in July 1888. Many other occurrences are given in his excellent article by Mr. Bickerton, who now claims 223 species as belonging to the Avifauna of the county.

58. *B. O. C. Migration Report.*

[Report on the Immigrations of Summer Residents in the Spring of 1906. Bulletin of the British Ornithologists' Club, vol. xx. London, 1907. 189 pp.]

In any report on Migration it is obvious that no safe conclusions can be drawn from the results of a single year, and we must wait for a considerable time before a reliable summary can be attempted; but all work of this description is useful, and we are more anxious to wish every success to the undertaking than to criticize the details at present submitted. Meanwhile the returns from the Light-stations are of especial interest, and the records of the state of the weather on the different days of the months are important items. The records of the earliest date of breeding of the various species should also form a distinct feature in the work, but these at present leave much to be desired, as they are scanty and belated. Hundreds more of observers are required, no area being yet sufficiently represented, while several counties do not furnish a single reporter. This being so, many arrivals must of necessity be overlooked; for example, it is impossible to suppose that only a single Land-rail appeared in Essex during the season.

We suggest that the district watched by each observer should be stated next year, and not merely his county, while the exact locality where each observation was made should be added to the record.

On p. 12 we do not understand how a species included in section A can also be placed in section D; there appears to be some mistake in the wording.

59. *Dresser's 'Eggs of the Birds of Europe.'*

[Eggs of the Birds of Europe, including all Species inhabiting the Western Palæarctic Area. By H. E. Dresser. Pts. VII., VIII. May 1907. Pp. 213–288; 8 pls.]

These two parts of Mr. Dresser's work, which are issued simultaneously, are concerned with the genera *Accentor*, *Panurus*, *Acredula*, *Parus*, *Lophophanes*, *Ægithalus*, *Sitta*, *Certhia*, *Tichodroma*, *Troglodytes*, *Motacilla*, *Anthus*, *Pycnonotus*, *Oriolus*, and *Lanius*. Under each head the author enumerates the various subspecies which have been proposed and comments on their validity, while also discussing the proper generic name. Perhaps his treatment of the forms of *Acredula*, *Parus*, and *Lanius* is the most worthy of attention, while the nesting-habits of the different species of Nuthatch are the most interesting of the details. *Parus salicarius* (=*borealis*) is accepted as breeding in Great Britain, but *Troglodytes hirtensis* of St. Kilda does not meet with recognition. It may be true that the Grey Wagtail has two broods in the season, but we should like to be sure that the later nests are not merely those of birds who have met with some mishap in their earlier attempts, as, from our experience, belated nests are extremely rare.

The plates come out extremely well and, as a rule, give a good idea of the variation of colour in the eggs, but in *Parus palustris*, *Certhia familiaris*, *Hirundo rustica*, *Coccothraustes vulgaris*, and some other cases there is a slight deficiency in this respect.

Pleasing woodcuts are given of the nests of many species, though, as is so often the case, they frequently give an incorrect impression of the surroundings.

Besides the eggs of species mentioned in the text, figures are given of those of *Cisticola*, *Scotocerca*, *Prinia*, *Telephonus*, *Ampelis*, *Muscicapa*, *Hirundo*, *Chelidon*, *Cotile*, *Carduelis*, *Chrysomitris*, *Serinus*, *Ligurinus*, *Passer*, *Petronia*, and *Coccothraustes*.

60. *'The Emu.'*

[The Emu. A Quarterly Magazine to popularise the Study and Protection of Native Birds. Vol. vi. pt. 3, Jan. 1907.]

This part contains the Report of the Sixth (Hobart) Session of the Australasian Ornithologists' Union, with a subordinate report on birds that have struck lighthouses. The President, Col. C. S. Ryan, of Victoria, addressed the meeting on "The Protection of Native Birds," while attention was drawn to the need of a "Check-List."

The chief articles are by Mr. D. Le Souef, on a new Bird-of-Paradise (*Paradisornis rudolphi hunti*) from British New Guinea, and by Col. Legge, on the Emus of Tasmania and King Island. For the latter small form the name *Dromæus bassi* was proposed, but only to be withdrawn almost simultaneously. Mr. F. L. Berney prints a fourth part of his paper on the birds of the Richmond district in N. Queensland (with many details of nidification), Mr. A. G. Campbell writes on the rearing of a Cuckoo (*Cacomantis flabelliformis*), and Mr. Mattingley on the same species and *Cuculus pallidus*.

Plate x. illustrates the home of *Sphenura broadbenti*, and the nest and eggs of *Pycnoptilus floccosus*; pl. xi. the nesting of *Sterna bergii*. The accompanying notes will be read with interest; as also will the suggested identification of the Galden of Dampier with *Butorides stagnatilis*, to be found in the "Correspondence."

61. *Hall's 'Glimpses of Australian Bird-life.'*

[Glimpses of Australian Bird-life. Thirty-one original Photographs direct from Nature. With Notes by Robert Hall, F.L.S., C.M.Z.S. Melbourne, 1906. Price 1*s.*]

Mr. Hall's "booklet" gives us a few words on each of the photographic pictures prepared mostly by his "fellow-naturalist" Mr. A. H. Mattingley, to which, however, other friends and the author have contributed. Some of the pictures are very good, others are not quite so successful. It would have been better, we think, to have added the scientific names to the vernacular, as some of the popular Australian terms would be likely to mislead a European reader.

62. *Hartert's 'Birds of the Palæarctic Fauna.'*

[Die Vögel der paläarktischen Fauna. Von Dr. Ernst Hartert. Heft iv.* Berlin, 1907.]

In the fourth part of this important work the Paridæ—under which family-name Dr. Hartert arranges the three subfamilies Parinæ, Regulinæ, and Paradoxornithinæ—are brought to a conclusion. After the typical *Pari*, 93 in number, are taken the aberrant genera *Ægithalus* (ser. *Acredula*), *Anthoscopus*, and *Cephalopyrus*, which add some 20 more forms to the list, and make the Palæarctic Parinæ 115 in number. The new subspecies indicated are *Parus major cashmirensis*, *P. m. tibetanus*, *P. m. okinawæ*, *P. cæruleus ogliastræ* (Sardinia and Corsica), and *P. lugubris anatolicus*. According to the nomenclature here adopted our British Tits would be *Parus major newtoni*, *P. cæruleus obscurus*, *P. ater britannicus*, *P. cristatus scoticus*, *P. palustris dresseri*, and *Ægithalus caudatus roseus*, besides the newly-discovered and somewhat problematical *Parus atricapillus kleinschmidti*.

The subfamily Regulinæ comprehends the genera *Regulus*, *Leptopœcile*, and *Lophobasileus*. Our Goldcrest is named *Regulus regulus anglorum*. *Leptopœcile sophia deserticola* is a new subspecies from the desert-land south of the Gobi.

In the diagnosis of the subfamilies (p. 340) *Panurus* is put among the Parinæ, but the so-called "Bearded Tit" is subsequently (p. 403) moved into the company of the Paradoxornithinæ. This, we agree with Dr. Hartert, is probably its better position, but a comparison of its internal structure with that of *Paradoxornis* has still to be made.

The Paradoxornithine forms that, according to Dr. Hartert, intrude into the Palæarctic Fauna in Eastern Asia are 16 in number and belong to the genera *Cholornis*, *Suthora*, *Psittiparus*, and *Conostoma*.

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* *Cf.* 'Ibis,' 1906, p. 194.

Next to the Paridæ come the Laniidæ—another very difficult group, with numerous Palæarctic representatives, which it is by no means easy to handle in a satisfactory manner. We are glad to see that the author puts all the typical Shrikes together under *Lanius*, and does not allow the numerous subgenera which have been proposed of late years. Dr. Hartert's Palæarctic *Lanii* are 36 in number, whereof one, *L. excubitor bianchii*, is a newly-named subspecies from Saghalien. Whether "*Lanius senator*" of Linnæus's tenth edition can be correctly assigned to the Woodchat is disputable, though Dr. Hartert is strongly in favour of this procedure. Besides the true *Lanii* only two Palæarctic birds are assigned to this family, *Telophonus cucullatus* and *Hypocolius ampelinus*. We agree with Dr. Hartert in being a little doubtful about the alleged African localities of the latter, though it may possibly occur on the Abyssinian littoral.

The next family treated is that of the Waxwings. But while he calls the family "Ampelidæ," the author reverts to the long-rejected term *Bombycilla* for a generic name. It is quite sufficient for us that in the twelfth edition of the 'Systema' Linnæus placed "*Ampelis garrulus*" at the head of his genus, and we do not understand why his name should not be adopted.

Two families that follow next, the Brachypodidæ (*scr.* Pycnonotidæ) and the Campephagidæ, are but feebly represented in Palæarctis. Dr. Hartert admits 12 representatives of the former and 4 of the latter group, amongst which we find two new subspecies, *Hypsipetes amaurotis stejnegeri* and *H. a. ogawæ* from some of the Japanese islands.

The rest of the present number is occupied by the Muscicapidæ, under which term Dr. Hartert would include the Sylviidæ, Timeliidæ, and Turdidæ, or the greater part of them. This will raise the family to gigantic dimensions, and it will be better to defer the discussion of it until the publication of the remainder, as only the true Flycatchers and part of the genus *Phylloscopus* are included in this number.

We may, however, remark that the proposed change of the name of *Muscicapa grisola* to *Muscicapa striata striata* will not, we believe, find many followers. As we have said before, such a change is not a reform, but a revolution!

63. *Hartert's 'Miscellanea Ornithologica.'*

[Miscellanea Ornithologica. Critical, Nomenclatorial, and other Notes, mostly on Palæarctic Birds and their Allies. By Ernst Hartert, Ph.D. Nov. Zool. xiv. p. 335 (1907). Part IV.]

Dr. Hartert continues his ornithological notes [*], and points out that the proper name of the Asiatic Flycatcher usually called *Muscicapa luteola* is *M. mugimaki*, the true *M. luteola* of Pallas being the eastern form of *M. parva*. He then directs attention to the genera *Cryptolopha*, *Abrornis* (lege "*Habrornis*"), *Tickellia*, and *Phylloscopus*, and shews how difficult it is to arrange the forms assigned to them in a satisfactory manner. He comments freely on Dr. Bianchi's recent review of these genera (Bull. Ac. Imp. Sc. Pétersb. sér. 5, vol. xxiii. p. 65), and corrects some of the identifications made by him and other authors. He adopts "*collybita*" of Vieillot (1817) as the specific name of the Chiffchaff, in place of the ordinary term "*rufus*," as has been done by Prof. Newton (B. B. i. p. 437), and attributes six subspecies to it.

64. *Hellmayr on the Birds of the Lower Amazons.*

[Another Contribution to the Ornithology of the Lower Amazons. By C. E. Hellmayr. Nov. Zool. xiv. p. 1 (1907).]

Mr. Hoffmanns, whose collection of birds from the vicinity of Para formed the subject of a previous communication from Herr Hellmayr [†], has lately sent to Tring two more consignments of Lower Amazonian birds, one from Santarem on the left bank of the Rio Tapajos and the other from Obidos on the north bank of the Amazons. We have here a report on these two collections.

The specimens from Santarem are referred to 78 species, of which a systematic account is given, varied by disquisitions on the allied species and subspecies which have been examined and compared. *Synallaxis rutilans amazonica* and *S. r. tertia* are described as new subspecies.

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[*] *Cf.* 'Ibis,' 1906, p. 717.

[†] *Cf.* 'Ibis,' 1906, p. 720.

We observe that *Alcedo dea* of Linnæus, which has hitherto been usually considered to refer to a Moluccan Kingfisher (*Tanysiptera dea*), is here used for a Jacamar, *Urogalba paradisea*, which is now called "*Urogalba dea dea*"! We fail to understand the necessity of this remarkable transfer, for which no sufficient reason is given.

In Herr Hellmayr's second chapter, on the collection from Obidos, 42 species are registered. None of these are new, but a specimen of the rare *Psittacula deliciosa* is the "first in any European Collection."

65. *Hellmayr on Birds from Teffé, Amazons.*

[On a Collection of Birds from Teffé, Rio Solimoes, Brazil. By C. E. Hellmayr. Nov. Zool. xiv. p. 40 (1907).]

After leaving Obidos (see above) Mr. Hoffmanns went up the Amazons to Teffé (Ega) on the south bank of the great river, and procured for the Tring Museum an interesting collection, of which Herr Hellmayr gives us an account. It contains examples of 118 species, of which *Pipra hoffmannsi*, *Dysithamnus schistaceus heterogynus*, *Thamnomanes cæsius persimilis*, and *Rhamphocœnus melanurus amazonum* are new species and subspecies. *Xenops genibarbis pelzelni* from S.E. Brazil is also described as a new subspecies in this paper.

Mr. Hellmayr makes it a principle to quote only "the original descriptions (of his birds) and such references as strictly pertain to the faunal district in question." He would save his brother ornithologists a great deal of trouble if he would add in each case a further reference to the work in which the name that he adopts may be found. For instance, where are we to look for "*Crocomorphus flavus*" (op. cit. p. 25) or *Leucolepia modulata rufigularis* (p. 41)?

It is also quite incorrect to add authors' names to designations which they never employed. For instance, we are sure that "*Granatellus pelzelni pelzelni* Scl." is a combination which was never used by the author indicated by the "Scl."

66. *Howard's 'British Warblers.'*

[The British Warblers. A History, with Problems of their Lives. By H. Eliot Howard. Illustrated by Henrik Grönvold. Part I. London, 1907. Price 21*s*. net.]

In this Part Mr. Howard gives a very full account of the Sedge- and Grasshopper-Warblers. They are described at length in both adult and immature plumage; their geographical distribution is considered, and their life-history detailed and illustrated by a series of ten plates rendered by photogravure process. A coloured figure is also given of the first species, and two of the latter (male and female). The illustrations are admirable and some of the best of their kind that we have seen, while an excellent coloured plate of eggs forms a frontispiece to the Part. Perhaps a little less might have been said about sexual selection, in which Mr. Howard is no believer, but otherwise the letterpress is pleasant to read and gives most reliable information. In a few points only the author trusts too implicitly to his own observations, which do not agree precisely with those of others. Maps are added to show the distribution of the Grasshopper- and Savi's Warblers.

67. '*Irish Naturalist.*'

[The Irish Naturalist. A Monthly Journal of General Irish Natural History. Vol. xv. Nos. 1–12 (1906). Eason & Sons, Dublin.]

In the earlier portion of the present volume is an interesting Memoir of the late Edward Williams of Dublin, a naturalist of great merit as well as an admirable taxidermist. He was a worker rather than a writer; nevertheless the list of his contributions to science fills more than a page and a half, and his records are absolutely trustworthy. Mr. R. J. Ussher's discovery of a mandible of the Hawfinch in Co. Clare caves is of great interest, for, as Prof. Newton observes, "eighty years ago or thereabouts Hawfinches were accounted scarce *visitors* to England, and it was only a few years after that they were found to breed here." Mr. R. M. Barrington records the occurrence of the American Snowbird (*Junco hiemalis*) at Loop Head Lighthouse, Co. Clare, on May 30th, 1905, and as the latter part of his article seems to betray a doubt respecting an "assisted passage," we wish to point out that no stepping-stones are known to exist for this species between the American Continent and Ireland. Herr Winge strongly denies any authentic record for Greenland, and Temminck (who assigned "the *banks* of Newfoundland" to the Great Auk for a breeding-place) is alone responsible for the "migrations" of this Finch to Ireland. Therefore the crossing of the Atlantic between Ireland and Iceland by the White Wagtail, Wheatear, &c. are not parallel cases. The writer of this notice is unable to believe that a Finch can, without food, fly direct across 1760 miles of ocean, and that is the shortest distance claimed for the new route between Newfoundland and Ireland. Mr. Barrington has a second record—namely, that of *Hypolais polyglotta*, from Old Head Lighthouse, Kinsale, Co. Cork, on September 23rd, 1905. Mr. Robert Patterson institutes a comparison between the avifauna of Ireland and that of the Isle of Man, as set forth in Mr. P. G. Ralfe's recent work. A photograph of a surf-lashed basaltic cliff in Co. Derry shews the site of a nesting-place of the Tree-Sparrow (*Passer montanus*), a rare species in Ireland. Mr. N. H. Foster was the discoverer of this new locality. Many interesting records are to be found among the minor notices.—H. S.

68. *Jourdain on European Birds' Eggs.*

[The Eggs of European Birds. By the Rev. Francis C. R. Jourdain. Part II. London, 1907. 8vo. Pp. 81–160, pls. 16–20; 24, 25; 39, 40; 44; 52; 113; 121, 122.]

We have now received the second part of this most useful work, and congratulate the author on his success in bringing the subject so thoroughly up to date in a comparatively small compass. His tendencies with regard to nomenclature we have already discussed ('Ibis,' 1906, p. 722).

The well-written text is extremely full of information, of which the completeness may be judged from the fact that we have only the following suggestions to offer. The Chaffinch occasionally nests on the ground, even in England; the Tree-Sparrow builds more commonly in walls, and the Rock-Pipit in grassy banks, than Mr. Jourdain seems to imagine; the Tree-Pipit sits more closely than the text would imply; and the Meadow-Pipit is credited with too great a love for marshy places as nesting-sites.

The plates, which are a great improvement on those of the earlier part, contain figures of the eggs of Larks, Pipits, Wagtails, Tits, Creepers, and Shrikes, of the Cuckoo, the Black Vulture, the Common Buzzard, the Rough-legged Buzzard, the Great Black-backed Gull, and the Great Auk. Of the eggs of the last-named four fine examples are depicted, but those of the Buzzards are on the whole a little dull; while the well-known grey specimens with blackish spots are not represented among those of the Tree-Pipit.

The letterpress treats of Finches, Buntings, Larks, Pipits, and Wagtails.

69. *Journal of the Danish Ornithologists' Union.*

[Dansk Ornithologisk Forenings Tiddsskrift. 1. Aargang. 1ste Hafte. November, 1906. Redigeret af O. Helms.]

We have the pleasure of welcoming a new addition to the list of journals devoted to Ornithology, of which we have lately received the first number. It is the organ of the lately-formed Danish Ornithologists' Union (Dansk Ornithologisk Forening), and is edited by Prof. Helms, of Haslev. After an introduction explanatory of the general character of the new Journal we have an article by M. Klinge on the migratory birds of 1906, and a description by Mr. A. T. Hagerup of the nesting of *Sylvia nisoria* in Denmark. These are followed by shorter notes and notices. We are sure that many English ornithologists will be glad to know of the existence of this new Journal and to study its contents.

70. *Koenig on the Vultures of Egypt.*

[Die Geier Aegyptens (mit 4 Heliographuren und 2 farbigen Tafeln). Bearbeitet von Dr. Alexander Koenig. Journ. f. Orn. 1907, pp. 59–92.]

This is a well-written essay on the five commonly known Vultures of Egypt, with which the author is well acquainted from personal experience, *Gypaëtus* being included in the list. Dr. Koenig shews that by several previous writers on Egyptian birds *Otogyps auricularis* has been mistaken for *Vultur monachus*, which would appear to be a much rarer species in Egypt than the former. Indeed Dr. Koenig states that he has never met with it himself in Egypt or Nubia.

On the other hand, we are rather surprised to see that *Gyps rueppelli* is not allowed a place in the Egyptian Avifauna. We believe that it certainly occurs in the Libyan Desert, living specimens of it having been obtained more than once by the Zoological Gardens of Giza from the Arabs of the Pyramids (see P. Z. S. 1895, p. 400, and 1896, p. 609). One of these birds is still living in the Gardens of the Zoological Society of London.

We may remark that it is a great mistake to reduce *Gyps rueppelli* to the rank of a subspecies of *G. fulvus* as has been proposed by Erlanger (*cf.* J. f. O. 1904, pp. 14, 144, tab. ii.).

Six nicely drawn plates, two of which are coloured, illustrate this memoir.

71. *Lampe's 'Catalogue of the Museum of Wiesbaden.'*

[Katalog der Vögelsammlung des naturhistorischen Museums zu Wiesbaden. III. Teil. Von Custos E. Lampe. Wiesbaden, 1906.]

The third part of this catalogue completes the work (see 'The Ibis,' 1906, p. 726). It contains the Gallinæ, Hemipodii, Fulicariæ, and Alectorides, according to the classification of the B.M. Catalogue. The number of species registered is 1993.

72. *Lönnberg on Birds from the Congo Free State.*

[Notes on Birds collected in the Congo Free State by the Swedish Missionary K. E. Laman. By Einar Lönnberg. Ark. f. Zool. iii. no. 21 (1907).]

A collection of birds made by the Swedish missionary Mr. K. E. Laman in the Congo Free State, between Isangila and Manyanga, and presented to the Royal Natural-History Museum, Stockholm, contains examples of 95 species, which are here enumerated. Field-notes by the Collector and a few remarks by Dr. Lönnberg are added. Some of the more uncertain specimens have been submitted to Dr. Reichenow.

73. *Lönnberg on Changes in Names.*

[Einige Nomenklaturfragen. Von Prof. Dr. Einar Lönnberg. J. f. O. 1906, p. 528.]

Although he "laments the necessity," Dr. Lönnberg proposes to change the names of some of our best-known species of birds, e. g. *Astur palumbarius* to *Astur gentilis*, *Anas boschas* to *Anas platyrhyncha*, and *Muscicapa grisola* to *Muscicapa ficedula*. The reasons for these and other changes advocated by the author are by no means convincing, and we do not think that many writers will follow him in adopting such proposals.

74. *Low on the Birds of Hudson's Bay and the Arctic Islands.*

[Report on the Dominion Government Expedition to Hudson Bay and the Arctic Islands on board the D.G.S. 'Neptune,' 1903–4. By A. G. Low, B.Sc., F.G.S. Ottawa, 1906. 8vo. 356 pp.]

This report of the expedition which was sent out by the Government of Canada for the exploration of Hudson Bay and the lands to the north of it contains an Appendix, in which is given a list of the species of Birds and Eggs "identified or collected on the voyage," and some short field-notes on them, supplied by Mr. Low. The specimens were collected and preserved by Mr. Andrew Halkett

Naturalist to the expedition. The list contains the names of 44 species, mostly well-known sea- and water-birds, the Passeres numbering only eight. *Cygnus columbianus* was found to be common on Southampton Island, where it was breeding on the swampy ground about the ponds.

75. *Mearns on the Birds of San Clemente Island.*

[Mammals of the Mexican Boundary of the United States, a Descriptive Catalogue of the Species of Mammals occurring in that Region with a General Summary of the Natural History, and a List of Trees. By E. A. Mearns, M.D., Major and Surgeon, U.S. Army.—Part I. U.S. National Museum Bulletin 56. Washington, 1907.]

Hidden in the middle of the first volume of Dr. Mearns's account of the Mammals of the Mexican Boundary will be found (pp. 141–2) a list of 37 birds observed and collected on the island of San Clemente in August 1894. San Clemente lies out in the Pacific, about 60 miles from the nearest mainland in the State of California. Adding to his own list two species of which examples were procured on San Clemente by Mr. C. H. Townshend in 1888 and 1889, and eleven others recorded by Mr. J. Grinnell in 1897, Dr. Mearns gives 50 species as the total number of the Avifauna of this island. Mr. Grinnell's report appears to have been issued as "Publication No. I. of the Pasadena Academy of Sciences," of which we have never seen a copy. Four or five of the Passerine birds of San Clemente have been separated as "subspecies" by the American ornithologists.

76. *Newton's 'Ootheca Wolleyana.'*

[Ootheca Wolleyana: an Illustrated Catalogue of the Collection of Birds' Eggs formed by the late John Wolley, Jun., M.A., F.Z.S. Edited from the Original Notes by Alfred Newton. Part IV. Alcæ—Anseres: with Supplement and Appendix. London: R. H. Porter, 1907.]

With the greatest pleasure we welcome the issue of Part IV. of the 'Ootheca Wolleyana,' which brings this excellent piece of work to its conclusion.

Professor Newton's chief object in preparing these volumes was, we believe, to preserve the memory of his great personal friend and fellow-worker John Wolley, the celebrated Oologist, who died in 1859, at the early age of 36. On Wolley's death his collection of eggs, to the formation of which he had devoted the best part of his life, was presented by his father (the Rev. J. F. Wolley) to Prof. Newton, "together with all the books and papers thereto pertaining." As the result has fully shown, no better disposition could have been made of them, and it was, in fact, in compliance with Wolley's last wishes that this course was adopted.

Prof. Newton, after consulting his friends as to the best use that he could make of this valuable property, came to the wise conclusion that a systematic catalogue of the contents of Wolley's Egg-cabinets, accompanied by notes from the collector's "Egg-book" and memoranda from his journals, would be the best way of utilizing the bequest for the benefit of Science. In April 1864, accordingly, he published the first half of the first volume of the present work. His course of action is described in the Preface as follows:—"In preparing this work for the press, the plan I have adopted has been to bring together systematically all the notes relating to the same species, and to arrange them for the most part in the order of the time at which they were written. I have not scrupled to add an account of such specimens as I have lately obtained, and of those which were included in the joint collections formed by my brother Edward and myself, prior to its incorporation with the contents of Mr. Wolley's cabinets. In doing this, I believe I have only acted as my late friend would have wished; for I am sure that, in leaving his collection to me, he expected that I should continue to make it as perfect as I could. These interpolations, however, are in all cases typographically distinguished from Mr. Wolley's text; so that there is no fear of my words being mistaken for his."

The first part of the 'Ootheca Wolleyana' relates to the eggs of the Accipitres and Striges of which specimens are in the Collection. It contains 180 pages and is illustrated by 18 plates. Of these, 9 coloured plates represent eggs and 8 nesting-places and nests, while one (Plate C) is a beautiful figure of the Gyrfalcon (*Falco gyrfalco*) drawn by

Wolf. This part also contains an excellent picture of Wolley, and a memoir of his life and work.

After the issue of Part I. of the 'Ootheca' there followed a long interval, during which the pressure of other work prevented the author from proceeding with it. It must not, however, be supposed that the great Collection of Eggs stood still and remained uncared for all this time. Far from this being the case, it was continually augmented by the addition of such well-authenticated specimens as Prof. Newton could secure by gift or purchase. At length it was whispered among his friends that "The Professor" had resumed work on the 'Ootheca' and was resolved to finish it. This report was happily true, and in 1902 Part II. of the 'Ootheca,' completing the first volume, was issued. We have already noticed it in 'The Ibis' for 1903 (p. 126) and have there summarized its contents. It contains all the Picariæ and commences the Passeres. It has five coloured plates of eggs and four lithographic drawings of scenery. In 1905, Part III., forming the first half of the second volume (Columbæ—Alcæ) was published. It was reviewed in the first number of this Journal for 1906 (p. 201). Besides 384 pages of letterpress, it contains 8 coloured plates of the eggs of the Great Auk (*Alca impennis*). All the originals of these figures are in the Wolley Collection.

We have now before us Part IV. of the 'Ootheca,' which embraces the remaining orders of Birds and concludes the second volume of this attractive work, which contains altogether 666 pages. A map is added to shew the district of Lapland which Wolley habitually frequented, and a frontispiece gives a view of Muonivara, his usual resort, from the south-east. In an Appendix (separately paged) are reprinted all the publications of Wolley on Natural History, except those included in the body of the work. They relate to Mammals, Reptiles, and Insects, as well as Birds, and shew the versatility of his genius.

In fine, we must specially recommend this most interesting book to our oological friends, and advise them to apply early for copies, as it is certain to go speedily out of print.

77. *North on a new Honey-eater.*

[Description of a new Genus and Species of Honey-eater from Rennell Island, Solomon Group. By Alfred J. North, C.M.Z.S., &c. Vict. Nat. xxiii. no. 5 (1906).]

This new Honey-eater, which it is proposed by Mr. North to call *Woodfordia superciliosa*, is based on a spirit-specimen sent to the Australian Museum, Sydney, by Mr. C. M. Woodford, C.M.Z.S., the British Resident in the Solomon Group. It is from the little-known Rennell Island, which Mr. Woodford has lately visited.

Woodfordia is remarkable for its large bill, short tail, thick tarsi, and stout fleshy feet, and is allied to *Melidectes* and *Melipotes*.

78. *Proceedings of the Fourth International Ornithological Congress.*

[Proceedings of the Fourth International Ornithological Congress, London, June 1905, forming Volume XIV. of the Ornis. Edited, under the direction of the President, R. Bowdler Sharpe, LL.D., by the Secretaries, Ernst J. O. Hartert, Ph.D., and J. Lewis Bonhote, M.A. With Eighteen Plates. London: Dulau & Co. February, 1907.]

In 'The Ibis' for 1905 (p. 622) we gave an account of the very successful meeting of the International Ornithological Congress, which took place in London in June of that year. We have now received a copy of the official report of the Proceedings of the meeting, which, as will be seen by the title, constitutes also the fourteenth volume of 'Ornis,' the serial publication of the International Congress.

The volume, after a short preface signed by the President, begins with a formal record of the proceedings of the Congress during its session in London, and of its excursions to Woburn, Cambridge, and Bridlington. Then comes the President's Address, which extends over fifty pages. It relates entirely to the history of the great collection of Birds in the Natural History Museum at South Kensington, which, we are told, now contains at least 400,000 specimens. Beginning with 1753, when Sir Hans Sloane's collections were acquired for the nation for the sum of £20,000, and the purchase of Montague House in Bloomsbury for the purpose of storing them, Dr. Sharpe recounts the whole story of the additions made down to the present epoch. Nearly all the best known English naturalists have contributed more or less to the famous Collection of Birds. We read of the names of Willughby, Ray, Montagu, Latham, G. R. Gray, Gould, Swinhoe, Wallace, Hose, Sclater, Salvin and Godman, and numerous others who have advanced the good work. Many, if not most, of the private collections of birds made of late years have by bequest, presentation, or purchase become National property, and have largely increased the value and importance of this great Collection. It will thus be seen, says Dr. Sharpe in concluding his address, "that nearly every private collection in England has passed with the willing consent of the owners into the British Museum, while the donation of the great collections of Mr. Allan Hume, the Marquess of Tweeddale, Dr. Godman, Mr. Salvin, Mr. Seebohm, Mr. Philip Crowley, and so forth, have contributed to its renown."

After the Presidential Address the rest of the volume of 'Proceedings' is occupied by the papers read at the General Meetings of the Congress and at the various Sections. The Sections adopted were five in number:—i. Systematic Ornithology; ii. Migration; iii. Biology; iv. Economic Ornithology; and v. Aviculture. The forty papers read before the Congress are arranged nearly in this order, and are illustrated by eighteen plates. We cannot afford space to give even the titles of them, but they relate to Bird-life in its different aspects and deserve the careful study of all ornithologists.

Three important communications of Count Berlepsch, of which he has favoured us with separate copies, have been noticed under that author's name (see above, pp. 483–4).

79. *Reports of the U.S. National Museum.*

[(1) Annual Report of the Board of Regents of the Smithsonian Institution for the Year ending June 30th, 1905. Report of the U.S. National Museum. Washington, 1905.

(2) Annual Report of the Board of Regents of the Smithsonian Institution for the Year ending June 30th, 1906. Report of the U.S. National Museum. Washington, 1906.]

Some years ago the Reports of the Smithsonian Institution (which contain the Reports of the U.S. National Museum) were very late in their appearance. This is, however, no longer the case, as the two reports now before us bring the account of the progress of this important Institution up to the end of the first half of 1906.

The Report for 1905 commences with a short history of the National Museum, which was in fact planned and commenced by the late Prof. Baird about 1850. Although the means granted to the establishment for making purchases have always been very limited, yet the accumulation of specimens received from various expeditions and surveys, besides private donations, have quickly converted the old building devoted to its use into a mere store-house, and the absolute necessity of a new structure with far more accommodation has long been recognised. After a tedious and regrettable (though perhaps, under the circumstances, unavoidable) delay the work of erecting the new building was commenced in 1904, and will, we believe, be shortly brought to a conclusion, when the collections, which embrace a very large and most important series of birds, will be properly housed.

The chief additions made to the bird-collection during the previous year are mentioned in the Report, and those of Dr. Abbott, from the Malay Archipelago, and Surgeon Mearns, from the Philippines, are specially noticed, as is also the receipt of a fine series of birds from Costa Rica contributed by the National Museum of that Republic. We have already spoken of the successful visit of Prof. Ridgway to that attractive country in 1904–5 *, which is also described in this Report. The total number of specimens of birds obtained by Prof. Ridgway on this occasion, besides those presented by the Costa-Rican Museum as above mentioned, was 1359. The number of specimens of birds (besides eggs) in the Museum is stated in this Report to be 140,878.

In the Report for 1905–6 the good, if somewhat slow, progress of the building of the new Museum is recorded, and certain alterations recently sanctioned are stated to "insure the acquisition of a structure of exceptional dignity and

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* See 'Ibis,' 1906, p. 396.

merit, which will rank among the finest museum-buildings in the world." Among the acquisitions the collections received from Dr. Abbott and Mr. Mearns are again specially alluded to.

80. *Robinson on the Birds of the Aroa Islands.*

[A Visit to the Aroa Islands, with a List of the Birds found there. By Herbert C. Robinson, M.B.O.U., C.M.Z.S. Journ. Fed. Malay States Museums, vol. ii. no. 1 (1906).]

Pulau Jemor, one of the Aroa Islands, a group situated in the Straits of Malacca twenty-five miles east of Sumatra, was visited by Mr. Robinson in August and again in November, in which month it is frequented by many birds on migration. His list contains the names of 40 species, mostly well-known Malaccan forms. Two species of *Pitta* (*P. cyanoptera* and *P. cucullata*) were abundant. Two specimens of *Larvivora cyanea* (not yet recorded from Sumatra) were obtained in November.

81. *Sharpe on the Collection of Birds in the British Museum.*

[The History of the Collections contained in the Natural History Department of the British Museum. Vol. II. Sect. 3, Birds, by Dr. R. Bowdler Sharpe. London, 1906.]

The history of the Birds of the National Collection at South Kensington takes up by far the largest portion of the second volume of this series, and extends to no less than 435 pages. It is the product of the ever-active pen of Dr. Bowdler Sharpe, to whose unabating energy the enormous increase in the number and value of the specimens, particularly of late years, is mainly due. Dr. Sharpe tells us here the long story of the progress of the Collection from the days of Sir Hans Sloane (1753) to the present time, and gives us much valuable information upon the various contributions, by gift and purchase, which have made up the magnificent aggregate. We have not space to go into the many particulars of its progress, but may say that the shares taken in forming the collection by Dr. J. E. Gray, Mr. G. R. Gray, Dr. Günther, and Dr. Sharpe himself are fully stated, and that the result is a very interesting disquisition on this subject which should be read by all ornithologists.

Much new information is given by Dr. Sharpe concerning the little-known "Watling's Drawings" (1778–1792) which were acquired by the Museum in 1902, and upon which Latham founded many new species of birds. A complete list of these drawings, 295 in number, is added, and valuable explanations regarding the species to which they should be referred are afforded. Similar important explanations are also given respecting the drawings of Parkinson, Foster, and Ellis, upon which other species of birds were founded by Latham.

The second part of Dr. Sharpe's article contains a detailed chronological account of the accessions made to the bird-collection from 1809 to the present time. It also contains a full history of the celebrated sale of the "Bullock Collection" in 1819, at which some, but unfortunately not all, of the historic specimens were purchased by Dr. Leach for the British Museum. The chief additions made every year from 1837 (when the official Register of acquisitions was commenced) to 1905 are successively enumerated. The article then concludes with an alphabetical list of the principal donors, collectors, and agents from whom the specimens of birds now in the British Museum have been received. This occupies some two hundred pages, and will be of very great use to working ornithologists. It is the more interesting as it is interspersed with many particulars about the lives and work of the more prominent persons who have contributed to the great National Bird-collection.

In concluding, we cannot but express our wonder that Dr. Sharpe should have found time to collect and put together in an accessible form so much valuable information on this subject.

The following passage from the volume gives the names of some of the principal contributors to the great collection which Dr. Sharpe has for the past thirty years had under his charge:—"Thanks to the donations of Mr. Allan Hume, Col. Wardlaw Ramsay, Dr. Godman, Mr. Osbert Salvin, Mr. Radcliffe Saunders, and to the bequests of the late Mr. Seebohm and Mr. Philip Crowley, the ornithological collection of the British Museum has been gradually raised to the foremost position...... I believe that the utmost estimate of the number of bird-skins and eggs in it in the year 1872, when I took office, would be 30,000 or 35,000 at the most. At the present moment the series is more than 400,000 in number, of which the eggs alone are nearly 100,000!!"

82. *Waddell on the Birds of Tibet.*

[Lhasa and its Mysteries, with a Record of the Expedition of 1903-4. By L. Austine Waddell, LL.D., C.B., &c. Third Edition, 1906.]

Besides the collection of which Capt. Walton gave us an excellent account last year (see 'Ibis,' 1906, p. 57), a second collection of birds was made during the British expedition to Lhasa by Dr. Waddell, one of the principal medical officers. Part of this collection was examined by Mr. Dresser, who described as new three species represented in it (*Babax waddelli*, *Garrulax tibetanus*, and *Lanius lama*) before the Zoological Society in 1905 (see P. Z. S. 1905, vol. i. p. 54), and made a few remarks on other species included in it. In the interesting and well-illustrated narrative of the expedition to Lhasa contained in the present work there are some allusions to birds, and in an Appendix "On the Fauna of Central Tibet" a general description of the principal species observed is given. Dr. Waddell agrees with Captain Walton in stating that the Lammergeyer (*Gypaëtus barbatus*), in company with the large *Gyps himalayensis*, was the common carrion-feeder on the carcasses of the dead transport animals "which lined the way" of the Expedition.

83. *Wytsman's 'Genera Avium.'*

[Genera Avium, conducted by P. Wytsman. 6th Part*. Picariæ, Fam. Coliidæ. By P. L. Sclater, D.Sc., F.R.S. 1906. Price 3*s.* 7*d.*

7th Part. Steganopodes, Fam. Pelecanidæ. By Dr. A. Dubois. 1907.

8th Part. Picariæ, Fam. Musophagidæ. By Dr. A. Dubois. 1907.]

The sixth part of Wytsman's 'Genera Avium' is devoted to a synopsis of the Coliidæ—one of the most characteristic and peculiar forms of the Ethiopian Avifauna. Mr. Pycraft, after a critical examination of every part of the structure of these birds, has come to the conclusion (see 'Ibis,' 1907, p. 253) that the Colies, which are admitted by everyone to be a very isolated group, have their nearest allies in the Swifts (Cypselidæ).

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* For previous notices of the 'Genera Avium,' see 'Ibis,' 1906, p. 211, and 1904, pp. 171, 309.

The author of the present synopsis inclines rather to Garrod's view that they are related "on the one hand to the Picidæ, and on the other to the Alcedinidæ and Bucerotidæ." He admits only eight forms of *Colius* as sufficiently distinct for specific rank, although several of these, after the fashion now prevalent, have been separated into various geographical forms. Thus *C. erythromelon* has been divided into five subspecies, and *C. leucotis* into four.

A coloured plate, drawn by Keulemans, represents *Colius leucocephalus,* and gives details of the structure of some of the other species.

In the 7th Part of the 'Genera Avium' Dr. Dubois discusses the family Pelecanidæ, which contains only the single genus *Pelecanus.* Of this group eleven forms are recognised. But we cannot agree with the author in ranking the South-American *P. molinæ* as only a subspecies of *P. fuscus.* It is a perfectly distinct species. We are doubtful of *P. sharpii* (of which a coloured figure is given) being anything more than a colour-phase of *P. onocrotalus.*

Dr. Dubois also gives us in Part 8 a summary of our knowledge of the peculiar Ethiopian family Musophagidæ. The author recognises 33 species and subspecies, which he places in 7 genera. Two nicely coloured plates illustrate the varied forms of this group.

XXVII.—*Letters, Notes and Extracts.*

We have received the following letters addressed "To the Editors of 'The Ibis'":—

Sirs,—In the autumn of 1905 I had the pleasure of meeting, in London, several members of the "Ziegler Polar

Expedition," who were then returning from Franz-Josef Land to the United States. Among many details of their two years' stay in the Arctic Regions, the most interesting to me was the fact that they had obtained several specimens of a Ptarmigan. Unfortunately the skins had been shipped with the heavy luggage to New York, so that I could not examine them; and I have only just received full information regarding the species to which the birds belong. Mr. Champ of New York, who superintended most of the details of the Expedition on Mr. Ziegler's behalf, and to whose energy its relief after the loss of the ship was due, kindly sent the skins to the American Museum of Natural History, New York, at my request; and I append Mr. Miller's reply to my enquiries concerning them. From p. 115, 'Fighting the Polar Ice,' by Mr. Anthony Fiala, it appears that the birds were shot in 1904 by the members of Mr. R. W. Porter's party.

Although several expeditions had previously visited the archipelago of Franz-Josef's Land, this is the first record of a Ptarmigan being found there. I also have never been able to obtain any absolute record of either Ptarmigan or Grouse being found on any of the three islands of Novaya Zemlya. The only reliable information that we have as to the distribution of these birds in that direction is from Mr. F. G. Jackson, in his book 'The Great Frozen Land' (p. 112). He says:—"About eight miles up from our camp I found some *Koropatki*—the *rüper* of Norway, and our own Ptarmigan—on a patch of scrub. This was the first time I had met with it; and, so far as my own journey is concerned, the Korotaika River (or Karataikha)—a river running into Barents Sea, some 40 miles south of Habarova—marks its north-eastern limit."

If any stragglers from Spitsbergen have succeeded in establishing themselves on Franz-Josef Land, it is possible that they may eventually extend to Novaya Zemlya, as they are doubtless the species of *Lagopus* best adapted to withstand the climate of that country.

I am, Sirs, yours obediently,

HENRY J. PEARSON.

The Ptarmigan of Franz-Josef's Land.

The pair of Ptarmigan collected by the Expedition on Alger Island, Franz-Josef Land, in June 1904, belong to a little-known species of considerable rarity in collections.

This is the Spitsbergen or Hyperborean Ptarmigan, *Lagopus hyperboreus*, a very near relative of two well-known species—the Alpine Ptarmigan (*L. mutus*) of the mountains of Europe, and the Rock-Ptarmigan (*L. rupestris*) of the Arctic Regions of both hemispheres. From both these species it differs in its larger size and in the presence of a greater amount of white on the tail-feathers, though in the latter respect there is considerable individual variation.

The Spitsbergen Ptarmigan was first described by Sundevall in 1838, and it is represented by a coloured plate in Elliot's 'Monograph of the Tetraonidæ.'

It has not before been recorded outside of Spitsbergen; and from the fact that no Ptarmigan had previously been observed on Franz-Josef Land, it seems likely that the birds found there in 1904 had been blown over from Spitsbergen.

The present pair of birds is an excellent illustration of the fact already recorded, that the male of this species retains the white winter-plumage considerably later in the spring than does the female. The male is wholly pure white, while the female, although taken at the same time, is in the brown plumage of summer.

The Museum expresses its gratitude for the opportunity of adding to its collection this heretofore unrepresented species.

W. De W. Miller,
Assist. Ornithologist,
American Museum of Natural History.

Messieurs,—Dans le Musée fondé à Zi-ka-wei, près Chang-Haï, par mon prédécesseur, le Père Heude, S.J., j'ai trouvé quelques oiseaux, dignes, me semble-t-il, d'être mentionnés.

Pitta nympha.—Un spécimen tué à Zi-ka-wei le 17 Mai,

1897. Le Musée de Chang-Haï en possède un autre, capturé à l'embouchure du Yangtse-kiang. Deux autres, et de la même localité, sont cités par M. Styan ('Ibis,' 1891, p. 359). Les individus rencontrés à Formose, à Amoy, à Echéfou, ainsi qu'au Japon, bien qu'en très petit nombre, autorisent peut-être à chercher cette brève sur tout le littoral chinois.

Merops bicolor.—Nos exemplaires viennent des collines qui avoisinent le lac Pó-yang. Je ne sais si ce guêpier a été pris sur d'autres points de la Chine.

Hierococcyx sparverioïdes.—Deux individus provenant du Ning-kouo-fou, où j'ai pu, moi-même, entendre à satiété cet infatigable chanteur en Mai dernier. Le P. A. David ('Les Oiseaux de la Chine,' p. 63) ne l'avait pas trouvé au Kiang-si, ni dans les provinces plus orientales. Mais M. Styan a signalé son passage à Hank'eou en Avril, et sa présence à Chang-Haï en Septembre et Octobre, et encore sur les collines de Ning-po (Tchékiang) ('Ibis,' 1891, p. 484; 1899, p. 288). Depuis, M. La Touche l'a capturé à Foutcheou, et tout dernièrement à Tchenkiang ('Ibis,' 1900, p. 45; 1907, p. 9). On doit donc conclure que ce coucou descend tous les printemps de l'Himalaya, et se répand jusqu'aux frontières les plus orientales de la Chine.

Corvus corone.—Un spécimen, tué à Tch'angtcheou (au N. de Ou-si, sur le canal impérial). Cette espèce n'a été, jusqu'ici, signalée sur le continent chinois que par M. La Touche, dans le Foukien ('Ibis,' 1892, p. 429). Mais la rencontre qu'en ont faite MM. Swinhoe aux îles Naotchao, près d'Haïnan, Whitely à Hakodate, Seebohm à Tsushima (Japon), Campbell à Séoul (Corée) ('Ibis,' 1870, p. 349; 1874, p. 159; 1892, p. 92 et p. 238), ferait croire que le *Corvus corone* habite, en petit nombre, il est vrai, tout l'Extrême Orient.

Syrnium newarense.—Deux exemplaires, l'un de Nantchang (Kiangsi), l'autre de Kienté (Nganhoei), juin 1872 et printemps 1873. C'est aussi de Kienté précisément que M. Styan a reçu un individu de cette belle espèce ('Ibis,' 1899, p. 289), pendant que M. Rickett ('Ibis,' 1900, p. 57) en recueillait un autre dans le Foukien. Peut-être cette chouette indienne a-t-elle une aire de dispersion plus con-

sidérable qu'on ne l'a soupçonné jusqu'ici (*v.* 'Les Oiseaux de la Chine,' p. 46).

Je suis, Messieurs, avec respect, votre tout dévoué serviteur,

F. Courtois.

Zi-ka-wei Museum,
près Chang-Haï (Chine),
28/3/07.

Sirs,—As there has been some discussion in 'The Ibis' about the identity of the Wild Swan of Seistan (see 'Ibis,' 1906, pp. 397, 612, 787), I beg leave to inform you that when I was in Calcutta in April last year (1906) I visited the Indian Museum and saw, by the kind permission of Mr. Annandale, the specimen transmitted to that institution by Col. Sir Henry Macmahon.

After a careful examination of it, I think I may confidently say that it is undoubtedly an example of the Whooper (*Cygnus musicus*).

I am, Sirs, yours obediently,

A. Thomson.

Zoological Society's Gardens,
Regent's Park, London, N.W.,
April 24th, 1907.

Retirement of Dr. Emil A. Goeldi.—We regret to see the announcement that Dr. Goeldi has felt it necessary, after twenty years' service in Brazil, to resign the Directorship of the Museum at Pará, which bears his own name and will ever remain a testimony of his splendid zeal and abilities. He is succeeded, we are informed, by Dr. J. Huber, who has lately had charge of the Botanical Section of the Goeldi Museum. Dr. Goeldi, who, as our readers know, has made many excellent communications to this Journal, will in future reside at Berne (36 Ziegler Strasse).

Birds of the Central Thian-Shan.—In Dr. Merzbacher's recently published account of his exploration of the Thian-Shan mountains of Central Asia *, we read of the difficulties that he met with in obtaining botanical specimens.

"Still less favorable," he continues, "were the conditions for gathering zoological specimens during a mountain-expedition, the aims of which were directed to quite another domain. Still we did not altogether neglect this branch of science. The specimens collected are numerous, and many of them are of high interest." In reply to enquiries whether any birds were obtained, Dr. Merzbacher kindly informs us that he brought home a series of from 400 to 500 bird-skins from this interesting and little-known district in the centre of the great continent of Asia, and that the "systematic elaboration" of them has been undertaken by Dr. H. Schalow, of Berlin. Dr. Schalow has already described two new subspecies from Dr. Merzbacher's collection (*Sylvia nisoria merzbacheri* and *Acanthis cannabina merzbacheri*, Orn. Monatsb. 1907, p. 3), and will shortly publish a complete account of it. Dr. Merzbacher is on the eve of departure for another exploring expedition in the Thian-Shan.

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* 'The Central Thian-Shan Mountains, 1902–3.' By Dr. Gottfried Merzbacher. London: John Murray, 1905. 1 vol., 8vo.

The Ostrich-Farm at Matarieh, Egypt.—The Ostrich-farm at Matarieh, near Cairo (belonging to the Société Anonyme du Parc de Matarieh), seems to be still in a prosperous condition. On the occasion of a recent visit (March 7th) the writer was informed that there were about 1400 birds on the farm, and that about 300 young birds were reared every year. As they mate, the pairs are separated from the herd and placed by themselves in different small enclosures, the males being at this epoch, in many cases, savage and even dangerous, unless great care be taken. Pairs were seen in process of laying, incubating, and attending to young birds of different stages of growth. The chief food given at that time of year was fresh clover. The price asked for a pair at the farm is £50.

From what I have observed at this and other Ostrich-farms*, I have come to the conclusion that in captivity, at any rate, the Ostrich is strictly monogamous, and that the old and oft-repeated stories about several females laying in one nest attended by one male are more or less mythical.

The Ostriches examined on this occasion appeared to be all *Struthio camelus*, except one fine adult specimen of *S. molybdophanes.*—P. L. S.

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* See 'Ibis,' 1903, p. 436; P. Z. S. 1895, p. 400.

The Return of the Ruwenzorian Expedition.—In our January number (above, p. 220) we inserted a letter from Mr. Douglas Carruthers containing an account of his proposed route home from Entebbe, on Lake Victoria. We have now the pleasure of announcing that his expedition terminated successfully, and that both he and his companion, Dr. Wollaston, have both arrived home. Leaving Entebbe in the middle of September, they crossed Uganda to Kasinga—a Belgian Station at the northern end of Lake Albert Edward. Thence they turned southwards to the north end of Lake Tanganyika, passing on the way the Mfumbiro volcanoes and Lake Kivu. The volcanoes, one of which rises to the height of 13,000 feet, were found to furnish many of the birds previously met with on Ruwenzori.

Messrs. Carruthers and Wollaston reached the Congo Free State station of Uvira on Tanganyika at the end of 1906, and continued their journey south by canoe down the west shore of the lake to Baraka, on Burton Gulf. Here they turned due west, and after a journey of six weeks across country reached the Congo River at Kasongo. From Kasongo they travelled by canoe, steamer, and railway to the mouth of the Congo, whence they took the steamer to Southampton. Owing to severe attacks of fever, the collection of birds made on the route home was small; but about 250 specimens were obtained, amongst which are examples of many interesting species from the Mfumbiro volcanoes and the west shore of Tanganyika.

Messrs. Woosnam and Dent also carried out their plans for returning home through the Congo State on a more northern route successfully. From Uganda they travelled due west through the great Congo forest, and down the Aruwimi River to the junction of that stream with the Congo. Thence they descended the latter to ts mouth, and took the steamer home. Shortly after arriving in London, however, Mr. Woosnam left England again to join Col. Bailward on another journey through Persia (see above, p. 74).

The specimens obtained on the Ruwenzorian Expedition, about 2,500 in number, are being examined by Mr. Ogilvie-Grant, who was, in fact, the planner of the expedition. Some 30 of the species represented have already been characterized as new in the Bulletin of the British Ornithologists' Club.

Return of the Alexander-Gosling Expedition.—Our last published news of the Alexander-Gosling Trans-African Expedition (see 'Ibis,' 1906, p. 615) left the sole survivor struggling slowly eastwards against the rapid flow of the Welle River and its affluents. We are now happily able to record that all remaining difficulties have been overcome, and that Mr. Boyd Alexander is safe at home and in good health. He gave an excellent account of his lengthy and adventurous journey from the Niger by Lake Chad to the Nile at the meeting of the Royal Geographical Society on May 13th last. As his narrative and map will shortly be published in full in the 'Geographical Journal,' we need not say more on the subject than that early in October last year the expedition crossed the water-parting between the basins of the Congo and the Nile, and descending the River Yei to Avurra, on the borders of the Anglo-Egyptian province of Bahr-el-Ghazal, reached the main stream of the Nile at Gaba Shambi. From here to Khartum was an easy transit by steamer, and thence Port Sudan was reached by the new railway on January 14th, and England a fortnight later.

The collection of Birds made by Mr. Alexander during his journey, with the assistance of his excellent taxidermist, José Lopez, contains about 2500 skins. Some sixteen new species represented in it have already been described in the 'Bulletin' of the British Ornithologists' Club, and others will no doubt be found when the series has been thoroughly examined.

The Aiken Collection of North-American Birds.—We are informed by Mr. W. L. Sclater that, through the generosity of General William J. Palmer, the collection of North-

American birds formed by Mr. C. H. Aiken has become the property of the Colorado College Museum. The collection includes over 5000 specimens, embracing examples of about 500 species and subspecies, and is especially rich in examples from the States of Colorado and Arizona and the Rocky Mountains. Mr. Aiken (a well-known taxidermist of Colorado Springs) has been at work forming it for the last thirty-five years, and has succeeded in making it the most complete collection of the birds of Colorado that has yet been brought together. It contains specimens of about 250 of the 380 species that have been ascribed to the avifauna of the State, and has been consulted by several authorities who have written on birds. It is of course of great importance to science that such a collection, formed by one of the best authorities on the birds of Colorado, should be deposited in some public institution in the State; and General Palmer's liberality has enabled this to be done. It has been arranged that a complete set of representatives of the species met with in Colorado shall be mounted and arranged for public inspection, while the bulk of the series remains "in skin," and will be placed in cabinets for the use of students.

A new Work on the Petrels and Albatroses.—The Petrels and Albatroses were always among the favourite groups of the late Osbert Salvin, and the excellent account of the Tubinares in the 25th volume of the 'Catalogue of Birds in the British Museum' was his handiwork. No opportunity was ever lost of obtaining desirable specimens of the Petrel family for the Salvin-Godman Collection, which is now incorporated with that of the British Museum. To illustrate the valuable series thus formed, Messrs. Salvin and Godman had a large number of figures of the different species drawn on stone by Keulemans, but unfortunately Salvin did not live to write the letterpress for his projected work. This has now been undertaken by our President, Dr. Godman, who hopes to be able to publish the 'Monograph of the Petrels' (with about one hundred plates) in four parts, the first to be issued before the end of the year.

Birds-of-Paradise in England.—Mr. Walter Goodfellow, the Collector, has recently returned from New Guinea, bringing with him a number of very rare birds. Among these are two examples of the Red Bird-of-Paradise (*Paradisea rubra*), a Twelve-wired Bird-of-Paradise (*Seleucides nigricans*), and several pairs of the King Bird-of-Paradise (*Cicinnurus regius*). On account of their sober plumage, hens of the Paradise-birds were formerly little valued, and the only example recorded as having been imported is a hen King-bird that died the day after reaching Sir William Ingram's aviary. Moreover, there are many Lories and Lorikeets, a Great Black Cockatoo (*Microglossus aterrimus*), and a Racket-tailed Parrot (*Prionoturus platurus*). On arrival the birds were sent, by the courtesy of Mrs. Johnstone, to her fine aviaries at Burrswood, near Groombridge; they were in excellent condition, shewing that sedulous attention must have been given to them on the passage home. On Saturday one of the Red, the Twelve-wired, and two pairs of the King Bird-of-Paradise arrived at the Zoological Gardens and were placed in the Tropical Bird-house, where they will be a great attraction. The hen King-birds are the only forms new to the collection; but there are also a pair of Red-fronted Lories (*Chalcopsittacus scintillatus*) and the Racket-tailed Parrot. Both species have been exhibited before, and these are not yet on show, but are kept inside in the Parrot-house, where is also another rarity—the New-Zealand Night Parrot (*Stringops habroptilus*), a nocturnal species, which is rapidly disappearing from its native haunts.—'*The Times*,' June 12th, 1907.

Death of Professor Newton.—As our last pages are passing through the press we learn with the utmost regret of the death on June 7th of Professor Alfred Newton, of Magdalene College, Cambridge, so well known to all of us, and one of the original founders of 'The Ibis.' It is with great reluctance that we postpone a notice of his life and work until our next number; but the time is too short to compile a memorial worthy of him, or indeed to obtain the necessary material.

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3 Hanover Square,
London, W.
May 29, 1907.

HOWARD SAUNDERS,
Secretary.

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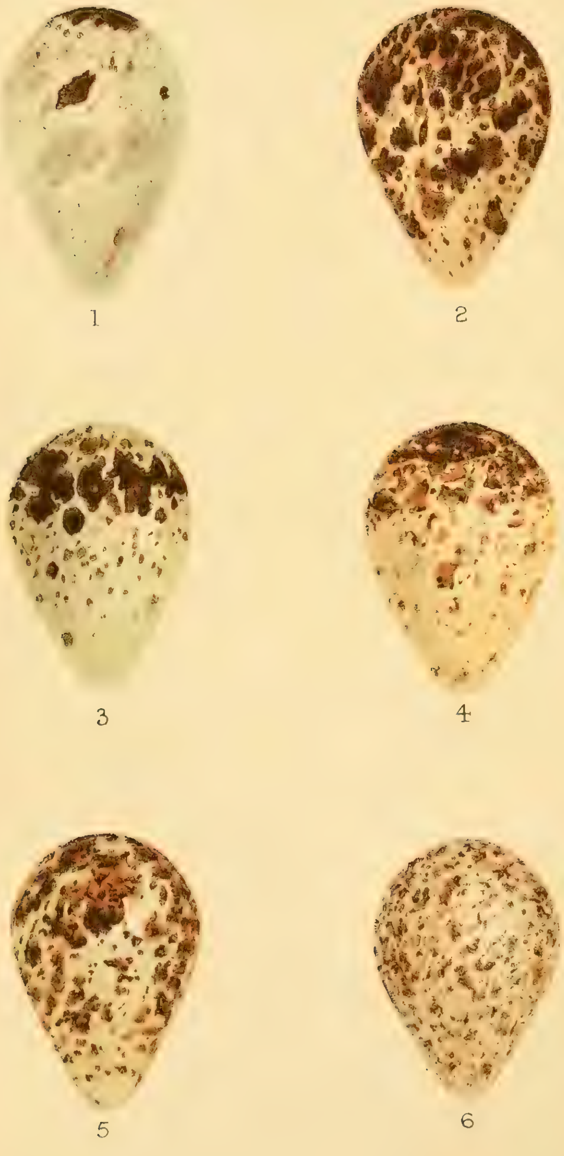
Ibis 1907. Pl. XI.



F. Jourdain & W. Raine, del.

Pitcher L^td Lith

(1-4) TOTANUS SOLITARIUS. (5) TRINGA MACULATA.

(6) TRINGA BAIRDI.

THE IBIS.

NINTH SERIES.

No. IV. OCTOBER 1907.

XXVIII.—*On the Eggs of some American Limicolæ.* By the Rev. F. C. R. Jourdain, M.A., M.B.O.U.

(Plate XI.)

I have pleasure in offering to 'The Ibis' figures of the eggs of three species of North-American Limicolæ, concerning which little has as yet been recorded, although all of them are in the "British List" as occasional stragglers to this country.

1. The Solitary Sandpiper. *Totanus solitarius* Wils. (Pl. XI. figs. 1, 2, 3, 4.)

It is unnecessary to repeat the particulars which have already been recorded in the pages of 'The Ibis' (1905, pp. 158–161) and in the 'Bulletin of the B. O. C.' (vol. xix. pp. 35–37) concerning the nesting of this bird. Like its congeners, the Green and the Wood Sandpiper, this species is now known to breed in other birds' nests. So far as has been ascertained at present, the habit appears to be constant, for every clutch which has been taken has been found in either an old or a new nest of some other species. Among these we may mention the American Robin (*Turdus migratorius*), Brewer's Blackbird (*Scolecophagus cyanocephalus*), the Cedar Waxwing (*Ampelis cedrorum*), and the Canada Jay (*Perisoreus canadensis*). As no figures of these rare eggs have hitherto been published, it has been thought advisable to illustrate some of the principal varieties. Fig. 1 (Pl. XI.) represents an egg in the possession of Mr. Raine, and is exceptionally light in colour and sparsely marked. Fig. 2 is from a clutch of five eggs in Mr. J. M. Goodall's collection, and is unusually dark and thickly marked. Figs. 3 and 4 are more characteristic of the usual type, but possibly the greenish tint has to some extent faded from the ground-colour in the case of the latter, which is in Major Proctor's collection.

Twenty-seven eggs, measured by Mr. Raine, average 35·73 × 25·42 mm.; maximum 38·1 × 26·16 mm., minimum 33·78 × 23·88 mm. The weight of an egg is 367 mg.

2. The Pectoral Sandpiper. *Tringa maculata* Vieill. (Pl. XI. fig. 5.)

The egg figured was obtained during the McIlhenny Expedition to Point Barrow, Alaska, and was taken on June 13, 1898, the incubating bird having been shot from its nest on the dry tundra. It was formerly in Mr. H. Noble's collection. Weight 368 mg., size 37·4 × 26 mm.

3. Baird's Sandpiper. *Tringa bairdi* Coues. (Pl. XI. fig. 6.)

This egg was also obtained by the McIlhenny Expedition, on June 15, 1898, at Point Barrow. Only one figure has been previously given of the egg of this bird, which, like the other two species mentioned above, is now admitted to the British List (see 'Catalogue of the Eggs in the Brit. Mus.' vol. ii. pl. ii. fig. 4). The egg was formerly in Mr. H. Noble's collection, and is now in that of Major Proctor. Weight 450 mg., size 34·4 × 24·5 mm.

EXPLANATION OF PLATE XI.

Figs. 1, 2, and 3 are taken from drawings, by Mr. W. Raine, of eggs of *Totanus solitarius*. The egg represented in fig. 2 was taken on June 15, 1906, in N.W. Alberta, by Mr. Evan Thomson (*coll. J. M. Goodall*); that in fig. 1 was taken on June 16, 1905. The egg represented in fig. 4 was taken by Mr. Thomson on June 6, 1906, from an old nest of *Turdus migratorius* in a tamarac tree, 15 feet above the ground (*coll. F. W. Proctor*).

Fig. 5. *Tringa maculata.* This egg was taken at Point Barrow by the McIlhenny Expedition (*coll. F. W. Proctor*).

Fig. 6. *T. bairdi.* Also taken at Point Barrow (*coll. F. W. Proctor*).

The figures 4, 5, and 6 are from drawings by the Author.

XXIX.—*Field-Notes on some of the Bush-birds of New Zealand.* By J. C. McLean, M.B.O.U.—*With an Appendix on the Species of the Genus* Pseudogerygone. By W. R. Ogilvie-Grant.

The present article is based on observations made, during the winter and spring of 1906, in a part of the North Island of New Zealand, some forty or fifty miles inland to the N.N.W. of Poverty Bay. Here, while I was supervisor of part of a large area of bush which was being felled to make way for stock, there were afforded, during my daily walks (chiefly through standing bush) to the different gangs of men employed, exceptional opportunities of studying bird-life. This block of bush, some three thousand acres in extent and contiguous to one of the largest areas of virgin forest remaining in the Colony, was felled during April and the succeeding six months and was burnt last December. Next year some four thousand acres more are to be felled by the owner in one block in the same locality.

Roughly the bush-country consisted of three classes:—(1) The birch-ridge, some three thousand feet in elevation, clothed on its southern side with great birches (*Notofagus fuscus*) interspersed with various other trees, and covered with Tawa (*Beilschmiedia tawa*) along its base. On top of this ridge the vegetation consisted almost wholly of birch and the handsome Tawari (*Ixerba brexioides*) with scattered Miro (*Podocarpus*) and other pines, and there was not much undergrowth. (2) The Tawa-bush of the south-western spurs, dense, and in most parts tangled with undergrowth of supple-jack vines and shrubby trees. These spurs, from which the birch was practically absent, gave way on the west to Maungahaumia Mountain, rising to 3979 feet—a part as yet unfelled. (3) The lower undulating country between the other classes, varying from 1500 to 2300 feet, intersected by many creeks and clothed for the most part with low (40 feet) Tawhera (*Weinmannia silvicola*) and Manuka (*Leptospernum ericoides*)—with hardly any undergrowth,—and shewing here and there low spurs densely clothed with a peculiar grass-tree or Nei nei

(*Dracophyllum urvilleanum*) often not more than five feet high.

Thus there was the greatest variety in the vegetation, and as many of the trees, such as the Tawari and the Nei nei, were local, so too were some of the birds.

On July 15th an unprecedented fall of three feet of snow occurred over the whole of this high country, doing great damage to the standing bush and causing, when it melted, an exceptional flood in the lower open country. Light snow frequently fell during the winter, and the average rainfall was much above that of the lower country.

The writer entered the bush on April 19th and, with little intermission, resided there until October 14th; camping for the first five months on the birch-ridge and afterwards in the Tawa country, but continually supervising the whole.

The few birds shot for identification were preserved and their soft parts carefully noted, but some kinds were not interfered with.

The following is a list of the species observed, with some of the notes made at the time.

1. CARPOPHAGA NOVÆ-ZEALANDIÆ.

Carpophaga novæ-zealandiæ Buller, B. New Zeal. i. pts. iv.–vi. p. 229, pl. xii. (1888).

No. 127. ♂ ad. Maungahaumia, 3000 ft., May 16th, 1906. Total length, in flesh, 22 inches. Iris brownish red. Tip of upper mandible black. Central portion of upper mandible clear yellowish horn-coloured, shading into dull crimson on the nostrils and base. Lower mandible yellowish horn-coloured at the tip, shading into dull crimson at base. Tarsus (lower third), front scales magenta or dull lake; hind scales dirty yellow. Feet, upper scales dull lake; lower (inside) dirty yellow. Claws black. A narrow line of small dull lake scales runs on each side of the front scales of the tarsus and foot and quickly blends in colour with the yellow behind.

Many other specimens examined varied but little in the coloration of the soft parts.

These Pigeons were fairly common in the tawa-bush in

April, when the berries of that tree were ripening, and became plentiful and very fat by the end of May. Still they were never so numerous as I have seen them in previous years elsewhere; and I believe that they were far more abundant in the Rakauroa district (some twenty-five miles south-west) in May, where, too, they were feeding on the Tawa, but, strange to say, were so poor as to be hardly worth shooting. It was hoped that they would remain to feed on the Miro and Hinau (ripe in June), but unfortunately (for the Pigeon and also for the bill-of-fare) the Miro-berries were blown off before ripening, and the hinau did not fruit in the locality this year; so that Pigeons were scarce after the Tawa was over in early June. In July they were low down on the Supplejack, but were then in poor condition.

After the heavy snowfall of July 15th many birds were seen flying singly due north, while they practically deserted this bush, and what few did remain subsisted on various leaves, principally those of the Mako-mako (*Aristotelia racemosa*). By the end of September it was quite a rare event to see or even hear one here*.

In April I had noticed them feeding on the rape on the newly-sown bush-land outside, and this plant seems to be a great stand-by for the bird.

Through lack of food in higher altitudes, the Pigeon is often forced to visit the lower country towards the end of July, where it feeds on the young and bitter shoots of the Kowhai (*Sophora tetraptera*).

2. HYMENOLÆMUS MALACORHYNCHUS.

Hymenolæmus malacorhynchus Buller, B. New Zeal. ii. pts. xii.–xiii. p. 276, pl. v. (1888).

The only other native species observed in this bush was the Mountain-Duck. A pair of these unsuspicious birds frequented a rocky pool in heavy bush for a few weeks. They are not uncommon in the higher reaches.

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* I have been informed that a survey-party found numbers of Pigeons nesting in the higher and adjacent bush here during the following November and December.

3. HARPA NOVÆ-ZEALANDIÆ.

Harpa novæ-zealandiæ Grant, Ibis, 1905, p. 576.

No. 130. ♀ ad. Maungahaumia, 2400 ft., May 21st, 1906. Total length, in flesh, 18·6 inches, wing 10·5. Iris brown, narrow. Point of mandible bluish black; darkest at tip and shading to bluish white below the nostril and middle of the lower mandible, and to greenish flake-white below and behind the nostril. Cere bluish and greenish white on the top, with a darker ring round the black nostril. Edges of gape bluish. Bare space in front of the eye and the lower eyelid (when closed) flake-white. Legs and feet pale greenish yellow. Claws black, bluish at the base.

The Quail-Hawk or "Sparrow-Hawk," as the colonists call it, though not often observed, appeared most plentiful in the tawa bush. It is usually found quietly resting under the denser tops of the smaller trees, whence, however, sudden sallies are made through the bush, causing great alarm among the Tuis and Bell-birds. The latter species is especially concerned, and although they do not scream like the Tui, display much greater dash in getting out of the way. From the crop of a Falcon shot at mid-day in heavy bush I took the remains of a number of wasp-like insects.

Naturally, until the bush was opened up a little by felling, this bird was seldom seen; then, however, it was to be noticed flying at Pigeons, Tuis, and Parroquets; but only once could I follow the chase long enough to see a kill. On this occasion a Tui was struck high above the birch tops, and fell screaming to the ground not far away. The Hawk came down to the dead bird, and on my approach, flew off with its prey with some difficulty.

This bush-bird appears larger than that which is sometimes, though rarely, seen in midwinter in the open hilly country lower down.

Obs.—*Circus gouldi* was once or twice observed, but as it had come for a tour of inspection from the adjacent clearing, I will not include this well-known Harrier of the open lands among the bush-birds.

4. NINOX NOVÆ-ZEALANDIÆ.

Spiloglaux novæ-zealandiæ Buller, B. New Zeal. i. pts. iv.–vi. p. 192, pl. viii. (1888).

The "Morepork" was very common on the birch-ridge, where there were many hollow trees, and made night hideous around our camp. Here, in the network of birch-roots, rats and mice were a plague, and as they collected about our camp so did the Owls. Falling trees disturbed many a one from its retreat—often to be set upon by the Whiteheads. These Owls have taken to the shaded recesses formed by felled trees in the gullies, and there possibly they will remain until the fire destroys their retreat. They did not appear so common in the other classes of bush; still many were observed, when disturbed by the felling in different parts. The "Morepork" is fairly common in the open country.

5. CYANORHAMPHUS AURICEPS.

Cyanorhamphus auriceps Grant, Ibis, 1905, p. 580.

No. 146. ♂ ad. Maungahaumia, 3000 ft., July 21st, 1906. Total length 10·25 inches. Iris clear reddish gold; point of upper mandible jet-black, clearly cut off from the basal half, which is pale cobalt-blue; lower mandible black; cere and nostrils black; legs and feet dark slaty black; soles of the feet dirty slaty yellow; claws black.

Yellow-fronted Parroquets were seen everywhere, out were particularly plentiful on the birch-ridges. Here they were busy feeding their nestlings in April, and many nests were found in hollow living Birch, Kinau, and Kawaka trees. In a few cases these were investigated and it was found that from two to five young occupied the cavity. In some nests these young varied so much in size that it was quite evident that they had been hatched at different times. In one case in particular, of five young two were quite fledged and could fly a little, two were only partially quilled, and the remaining one was much smaller and less developed.

April appears very late for these birds to be nesting, but some good supply of food must have existed in this bush during the late summer, or (possibly) the coming heavy crop of Tawari, which ripened in early May and was in such abundance through the two following months, was anticipated by the parents. In May they were busy educating their young, and small parties of from four to seven were noticed on several occasions. It was amusing to watch the old birds, with bubbling chatter, exhorting their hesitating offspring to negotiate some wider space than usual between the birch tops.

The Yellow-fronted Parroquets have a habit of accompanying the flocks of Whiteheads (*Clitonyx albicapilla*), and in June and the following months this trait was observed almost daily *. That they are very much attached to these little birds was noticeable on one occasion, when, wishing to obtain a specimen, I disturbed the troop very much by shooting at a Parroquet in a tall birch full of Whiteheads. The birds went all ways, but the Whiteheads quickly reassembled in one birch and started off with their straggling flight to another. Then the Parroquets rocketed across and joined them, and all moved on together. Shortly afterwards the Whiteheads were seen to turn and retrace their steps from tree to tree. This did not deter the Parroquets, who turned with them and all came on towards me and passed by. When any excitement is caused among these flocks the Parroquets remain chattering in the tops overhead until the noise subsides and the parties resume their advance.

During the winter the Parroquets fed almost exclusively on the Tawari and became very fat; but in spring, when this food was exhausted and the flocks broke up, they were found more generally distributed in pairs, while they had become in poor condition by October. I examined a number of specimens shot during my stay, and all were of the present species; but I have little doubt that *Cyanorhamphus novæ-zealandiæ*, the Red-fronted Parroquet, also occurs.

Parroquets are rarely seen in the scattered bushes of the open country.

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* See above, p. 216.

6. NESTOR MERIDIONALIS.

Nestor meridionalis Grant, Ibis, 1905, p. 581.

No. 137. ♂ ad. Maungahaumia, 3000 ft., May 27th, 1906. Total length 18·2 inches. Iris brownish black; bill black at the tip, shading to slaty black at the base; nostril black with dirty greenish yellow on the slaty cere; legs and feet with small slaty black scales on dirty yellow skin; inside of feet dirty yellowish white; claws slaty black.

No. 147. ♀ ad. Maungahaumia, 3000 ft., July 26, 1906. Total length 17·2 inches. Iris brownish black, almost black; bill slaty black, lighter at the base of the lower mandible; legs and feet slaty black; claws dark horn-coloured; inside of feet dirty yellowish.

The Kaka Parrot was not common when I first arrived in April, but towards the middle of May, when the Tawari became ripe, it appeared in great numbers on the birch-ridges, and by the end of June was excessively fat. The tops of these trees were well populated for many weeks, and as they were felled the birds descended to the fallen tops, but they appeared to have some difficulty in obtaining the fruit from this position. They roosted down the sides of the hills, but were early astir, and by sunrise the bush around our camp resounded with their pleasant whistling. Here they remained among the larger limbs of the birches during the heat of the day, and subsequently to the afternoon meal flew late to roost. The seeds of the Tawari (*Ixerba brexioides*) are contained in soft segmented pods, about the size of a filbert, produced at the tips of the branches. The Kakas open these pods and swallow the seeds, together with some of the pulpy interior of the pod, digesting the inner creamy pulp and afterwards ejecting the shining black skin. They also feed on the Miro-berries, and their bills become quite sticky with the gum. In wet weather they were often started from the ground, where, no doubt, they were investigating fallen and rotten timber in search of grubs. Their harsh scream, like the scratching of a nail upon a tin match-box, was much in evidence before stormy weather, and many, if not all, would leave this high ridge some hours before the storm broke. In spring they were to be seen scattered singly through the bush and were then not so plentiful as in winter.

During winter, the Kaka is sometimes seen in the bushes of the open country or passing, with discordant screams, high overhead.

7. CHALCOCOCCYX LUCIDUS.

Chrysococcyx lucidus Buller, B. New Zeal. i. pts. iv.–vi. p. 132, pl. iii. (1888).

The Shining Cuckoo was first heard in heavy Tawa-bush on October 5th at 6 A.M., and the long-drawn whistling notes of another were audible a few hours later in the nei-nei scrub. It was heard occasionally during the remainder of my stay *.

This bird was not so common in our bush as it is in the open country, where it is especially noticeable in late summer in the vicinity of open creeks and river-flats, wherever the Kowhai is abundant. This tree harbours a species of caterpillar on which the Cuckoo becomes excessively fat ere it leaves the Colony in March on its long flight to more northern lands.

8. MIRO AUSTRALIS. (Text-fig. 31, p. 527.)

Miro australis Buller, B. New Zeal. i. pt. ii. p. 33, pl. i. (1887); McLean, Ibis, 1892, p. 251.

No. 129. ♂ ad. } Maungahaumia, 2000 ft., May 18, 1906.
No. 128. ♀ ad. }

A pair shot in company in open scrub. Iris brown; bill black, brownish at the base; tarsus brownish horn-coloured; soles of feet bright yellow in ♂, dirty yellow in ♀. Length in the flesh: No. 129 6·5, No. 128 6·3 inches.

The Robin was common in the particular class of bush it affected, but was never seen in the Tawa nor in the birch. It is only found in scrubby bush, which *must* be free from undergrowth. Here it was practically confined to one valley, in the country referred to in the introduction and designated (3). Amid the stunted Nei nei or grass-tree with its sprinkling of Tawheri, honeysuckle, Manuka, and various species of *Pittosporum* and *Coprosma*, the Robins seemed secure. But this valley, about a mile in length,

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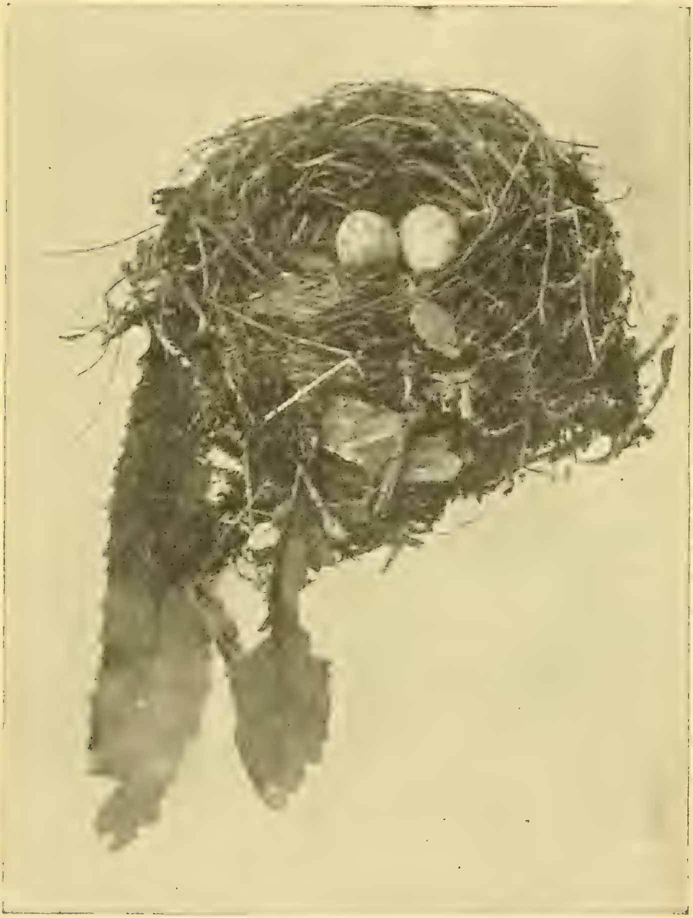
* *Eudynamis taitensis* (the Long-tailed Cuckoo) was not seen, and probably had not arrived when I left on October 14th, but a survey-party found it fairly abundant, from early November onwards, in the adjoining bush.

Text-fig. 31.



Nest of *Miro australis*.

was given up to the axe, and another retreat of this unfortunate species has thus vanished.

It is a jealous bird and assails any of its own or of other species that trespass in its domain. At the nest the greatest anxiety is displayed, while the female by fluttering to the ground and feigning a broken wing does her best to lead the intruder from the spot, and has even been known to attack and peck his hand. But usually this bird is tame and confiding and often comes quite close to view with soft gaze the stranger passing through the scrub. It has been observed, when lunch is being eaten in the bush, to approach and readily pick up crumbs of bread or biscuit thrown towards it.

Throughout the winter months the Robin rarely sang, but as spring advanced its beautiful notes were heard continuously in this particular locality; while its trill, not unlike that of *Miro toitoi,* but softer, sweeter, and more musical, was first heard on September 6th. It is one of our best songsters.

Its nests, among the most handsome that I have seen, were taken, one with very much incubated eggs on September 28th and one with fresh eggs on the previous day. In each case the axes were within a few yards of the site. The nest is also one of the most protective built by any of our bush-birds. Placed low down in the fork of some moss-clad, gnarled, and knotted Tawhera amid dense Nei-nei scrub, with the moss of which it is composed still green with dampness, the rich brown rootlets of the rim fresh as the day they were plucked from the living plant, and the handsome eggs harmonising with the lining of bleached grass-blades, it presents a picture rarely seen. A zone of darker rootlets in the centre of the wide rim adds much to its beauty, but unfortunately this fades as the nest dries and is barely discernible in the photographs. In all the nests of this species that I have examined the same kind of lining has invariably been used.

The Robin is an old acquaintance*, and I have noted it for many years in another somewhat limited and gradually decreasing area, where, though not now so common, it still nests. The tree-frequenting rat is found in the Maungahaumia bush, but does not, I fancy, trouble the Robins' country. The bird is very local indeed, and, I am sorry to say, the little there is of the class of bush affected by it is being fast destroyed, and I am much afraid that this district—in all probability the last retreat in the island of one of our best song-birds and a purely insectivorous species—will, too, soon know it no more.

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* See 'Ibis,' 1892, p. 251.

9. PETRŒCA TOITOI.

Myiomoira toitoi Buller, B. New Zeal. i. pt. ii. p. 39, pl. i. (1887).

No. 123. ♂. Maungahaumia, 2300 ft., May 10th, 1906. Total length 4·8 inches. Iris black; bill and legs black, feet blackish; inside of the mouth yellow; soles of the feet gamboge.

No. 134. ♀. Maungahaumia, 2000 ft., May 26th, 1906. Total length 4·75 inches. Iris black; upper mandible black, lower black at the point, pale yellow at the base; inside of the mouth yellow; legs dark brown; feet brownish yellow; claws black; soles of the feet bright orange-yellow.

During the winter the "Pied Tit" was fairly common in the heavy bush, but less so in the autumn, and became rarer in the spring, doubtless making off to the clearings on the edges of the bush, where it was always plentiful. The males started trilling about the end of the month of August, and could then be seen flying from twig to twig in restless mood. As spring advanced this trill was very frequently uttered and almost took the place of the winter call, *se-swe-se,* while savage fights were of daily occurrence.

The Pied Tit prefers the more open parts of the bush, where it can enjoy the sun. In such places I have watched the males and females taking insects on the wing. Only in the spring have I seen them at any great height from the ground, when males have been noticed far up in the branches of the birch.

Its nest of moss and leaves was observed towards the end of September placed low down in a decayed Tawhera stump.

In the open country the Pied Tit frequents some of the scattered patches of bush, though sparingly, and chiefly in winter.

10. Pseudogerygone macleani* Ogilvie-Grant.

Pseudogerygone flaviventris Grant, Ibis, 1905, p. 588.

No. 136. ♂. Maungahaumia, 2000 ft., May 26th, 1906. Total length 4·45 inches. Iris reddish golden; bill, tarsus, feet, and claws slaty black; base of the lower mandible fleshy white; inside and edges of the gape yellowish; soles of the feet dirty white.

No. 143. ♂ ad. Maungahaumia, 2000 ft., July 8th, 1906. Total length 4·7 inches. Iris dull yellowish pink; bill black; legs, feet, and claws slaty black; soles of the feet dirty yellowish.

Throughout each month I noticed no appreciable difference in the numbers of this Warbler, and it may be said to be a fairly common resident everywhere in pairs in all classes of this bush. It was hardly heard in winter, but when fine weather came its song was to be heard (August 20th), and soon became quite a familiar sound throughout the undergrowth and scrub. Two nests were observed: one, in a sunny glade, was pendent in the branches of a tawhera sapling some twelve feet from the ground; the other, in the tawhera scrub, was situated low down in a small shrub.

This Warbler is also to be met with in the shrubberies near the towns, and is fairly common in the open country.

11. Rhipidura flabellifera (Gmel.).

Rhipidura flabellifera McLean, Ibis, 1892, p. 252; Grant, Ibis, 1905, p. 589.

No. 125. ♂ ad. Maungahaumia, 2400 ft., May 11th, 1906. Total length 6·65 inches. Iris, bill, legs, feet, and claws black.

The Pied Fantail-Flycatcher was uncommon and local, preferring the more open sunny glades in tawa country. A pair usually appeared in the small clearing made around each camp and remained about these spots for some time.

One pair was busy finishing off their nest forty feet up in a large Tawhera tree in open Tawa forest on September 29th, but, as was usually the case with all the nests I found, the axe laid low their home.

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* See below, p. 545.

In the lower open country of the East Coast district the Fantail is not uncommon and holds its own.

12. CLITONYX ALBICAPILLA.

Clitonyx albicapilla Buller, B. New Zeal. i. pt. ii. p. 53, pl. ii. (1887); McLean, Ibis, 1892, p. 251.

No. 142. ♂. Maungahaumia, 2500 ft., June 29th, 1906. Total length 6·05 inches. Iris black, surrounded by a *hazel* ring; bill bluish black, lighter at the base of the lower mandible; inside of the mouth blackish, the remainder and edge of the gape bright orange-yellow*; legs and feet brownish slate-coloured; soles of the feet yellowish.

No. 126. ♀. Maungahaumia, 2200 ft., May 12th, 1906. Total length 6 inches. Iris black; bill black; gape tinged with yellow on the edge of mandibles; inside of the mouth fleshy-yellow; tarsus black; feet blackish horn-coloured above, lighter on the soles; claws blackish horn-coloured.

Of the birds which may be called resident—those which are not compelled to seek, at different seasons, the various fruits and flowers which may grow in other parts—the Whitehead was the most numerous in the Maungahaumia bush. It was evenly distributed during winter, but in spring was more plentiful in the lighter Tawa and Tawhera bush than it was on the birch-ridge.

At first (April), and all through the winter, it was invariably found in flocks, and it was not unusual to meet with four or five different parties during the day numbering from eight or ten individuals to forty or more. As the depth of winter approached the size of these flocks increased. Pairing was first noticed on July 26th and some charming courtships were subsequently witnessed. On this date the trill of the male was heard for the first time, but it was not general until the flocks began to break up towards the end of August.

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* The inside of the mouth of the male is noted by the late Sir Walter Buller as black, but it certainly was not so in this instance.—J. C. McL.

In winter the Whitehead's notes are mostly short and harsh, but in spring the male makes many low warbling sounds besides the half-a-dozen of his tinkling trill. The food consists chiefly of insects, but the birds are also very fond of the seeds of various trees. The Tawari (*Ixerba brexioides*) was in full fruit during the winter, and on the birch-ridge, where nearly half the vegetation consists of this handsome tree, the Whiteheads were very numerous, feeding on the shining black seeds of the opening pods.

The pert and inquisitive Whitehead is the "rowdy" of the bush and seems ever anxious to draw a crowd. It is very severe on the Morepork (*Ninox novæ-zealandiæ*), which it appears to hunt up out of pure mischief, and woe betide the unfortunate Owl disturbed from its retreat by a falling tree.

An imitation of the cry or a sharp whistle will quickly bring the flock near, and such a hubbub ensues that all small birds within hearing are soon collected about the intruder, but this crowd soon disperses.

Creadion carunculatus and *Certhiparus novæ-zealandiæ* have been noted* as following the flocks of *Clitonyx ochrocephala* (the South Island representative); and here, on the birch-ridges, I found *Cyanorhamphus auriceps* invariably accompanying the winter flocks of *C. albicapilla*. Besides the Parroquets, Blight-birds, Fantails, and Warblers—one, or other, or all—were sometimes in attendance. The Whiteheads keep more forward in the lower tops, hunting methodically and with a few harsh notes; over them, in the highest part of the trees, are several Parroquets acting as scouts, with hesitating style and chattering softly; a few Blight-birds are calling close on the heels of the Whiteheads; a Fantail or two plays carelessly about the wing, while an odd silent Warbler is busy among disturbed insects. Such was the composition of these flocks on most occasions and always so when, in fine weather and with great regularity, the morning movement took place past our camp about an hour after sunrise.

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* Birds of New Zeal. 2nd. edit. vol. i. pp. 20 & 52.

Incidentally, I may mention that my first introduction to the Whitehead was on March 15th, 1889, when I found a small party mobbing a Bronze Cuckoo (*Chalcococcyx lucidus*) on the Wharekopae River of this district. On this occasion, as on others about that time, *Rhipidura flabellifera* and *Zosterops cærulescens* were seen with the flocks which, in that lower altitude, were busy feeding on the seeds of the Matipo and Karo (species of *Pittosporum*) *.

An uncompleted nest was seen in a small honey-suckle-tree in Tawhera-scrub on September 28th.

I have noted the Whitehead in several parts of this district during the past fifteen years, but nowhere in such numbers as in this Maungahaumia country.

13. ANTHORNIS MELANURA (Sparrm.).

Anthornis melanura Grant, Ibis, 1905, p. 590.

The Bell-bird, fairly distributed during the winter in the Tawa bush, was more plentiful in the scrubby Tawhera country. Half-a-dozen birds, often in couples, were usually noticed in the day and others heard from the tops. Though they were rarely met with on the highest birch-ridges, one individual, for some weeks after our arrival, called the camp every morning with its melodious chime. In the winter single birds were continually heard uttering this chime from the tops of the higher trees, and as spring came on a great variety of pealing notes were added to the strain, some startling when uttered near, and varied in volume as the bird directed them in different directions. The Bell-bird has a habit of sitting, for a considerable time, in one spot, uttering, at regular intervals, a monotonous "*poing*," which becomes quite distasteful. Altogether, the notes, so pleasing on first acquaintance, cannot compare with the richer and more varied tones of the Tui (*Prosthemadera novæ-zealandiæ*). Many of them resemble those of the latter bird, and so few persons distinguish the two that I found it hard to convince the bushmen of the Bell-bird's presence in this district. It was in full song towards the end of September, and became quite plentiful in the scrubby Tawhera and Nei nei (then in flower), and also in the damper gullies of the Tawa country, where the native Fuchsia flowered in abundance.

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* See 'Ibis,' 1892, p. 251.

The Bell-bird is very pugnacious in the pairing-season, and a fight which I witnessed between two individuals was the severest that I have seen among wild birds. Otherwise it is rather timid and is far more afraid of the falcons than any other bush-bird.

A completed nest, placed low down in a bushy-topped Tawhera, was observed in the Nei-nei scrub, and its lining of the orange fronds of that peculiar trailing ground-plant "Creeping Jenny" was much admired.

During the past few years I have heard the Bell-bird ("Kopera" of the east coast Maories) in widely-separated localities in this district, where it is not rare.

14. PROSTHEMADERA NOVÆ-ZEALANDIÆ (Gmel.).

Prosthemadera novæ zealandiæ Grant, Ibis, 1905, p. 591.

The Tui was—quite unexpectedly—never at any time common, and I cannot believe that this bush gave a true indication of the bird's position in the district. Possibly, as was the case with the honey-bee, it did not find sufficient flowers here to warrant its frequenting the locality in any numbers. Even when the native Fuchsia (*Fuchsia excorticata*) flowered in spring, it appeared less numerous, and at that time was noticed on the flowering birch—really a beech (*Notofagus*).

A nearly complete nest was observed late in September, but was deserted owing to the felling approaching the site.

In April the birds were as numerous, if not more so, down country, where fair-sized patches of bush still exist; and in October, while they were still scarce in the Maungahaumia bush, I found them, some ten to fifteen miles off, in great numbers. There they were in full song, but the dominant note was quite different to that adopted by the bush-contingent, and some of the notes had not been noticed in the main bush. As I rode along through this open country there was one continuous pleasant peal and chortle from the trees around, where the birds were busy among the yellow Kowhai blossoms and native Fuchsia flowers.

This variation of the notes in different localities is very puzzling. The bushmen say the Tui changes its notes every three months! but in this case, two localities, in close touch, each had its own dominant note on the same date. The galloping "*tu-la tu-la*" of the bush was first heard towards the end of September, and within a few days had so "caught on" that every Tui was using it—early and late, and it was still "all the rage" on October 14th. But ten miles off, in the open country, I found next day that a totally different note—a measured ringing "*tol, tol, tol*"—was the fashion, and although I must have heard scores of the birds in continuous song, I never heard among them the familiar double-noted music of the bush. In one locality they were feeding chiefly on the birch and in the other on the Kowhai. Is it possible that food may influence the song? This supposition may be worth investigation in other parts of the colony *.

Unfortunately the Tui, when fat, is considered by the Maories a great delicacy and, although a protected species, is shot by them in large numbers.

15. ZOSTEROPS CÆRULESCENS (Lath.).

Zosterops cærulescens Grant, Ibis, 1905, p. 591.

The Blight-bird was not at any time very common, and its movements were most erratic. In the open country, twenty miles to the southward, it was observed in numbers moving about in small flocks during March and April, but it was not seen in the Maungahaumia bush until May, when an odd bird was noted. In the beginning of June it appeared here in small flocks, often moving with the

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* Since the above was written, over the greater part of the more open country of this large district I have heard the Tui in numbers, and with one exception the dominant note has been "*tol, tol, tol.*" The exception came from a single bird—one of a pair—many miles from Maungahaumia, where its "*tu-la tu-la*" was heard in the same little strip of light bush on each of the occasions when I passed its home during the past four months.

Whiteheads (*Clitonyx albicapilla*), and as the weather became colder these flocks increased in size and were noticed feeding on the scraps about the camps. The severe snowstorms on July 15th appeared to disperse them—probably killing many of the birds—and single individuals, with plaintive call, were but rarely noticed for some weeks. In August small parties frequented the camps, evidently hard-pressed for food; and dead birds were picked up at an old station, where they had simply stayed and starved after the men had left. From this time onwards, small flocks were noticed about different camps, and were there when I left in October. These birds seemed hardly ever to leave these spots and look for other food in the bush. On October 26th, in the open country, where they were numerous in April, a nest, with three young about a week old, was observed and odd pairs were noticed. At this time the bush-birds were probably still in flocks.

The Blight-bird, that wanderer to the North Island in 1856 and hailed as a benefactor to the gardens in 1858, is the only bird for which the bush-feller has no good word. It has a habit of entering the galley (cooking compartment) during the men's absence, helping itself to butter and fat, and making a great mess about the place. Nothing will frighten it, and a flock can make a fair hole in any cooked meat left uncovered during the day.

In some seasons these birds nest in numbers in the scrub and creepers of the coastal country, while in other years hardly a specimen is noticed there in the breeding-season.

16. ACANTHIDOSITTA CHLORIS. (Text-fig. 32, p. 539.)

Acanthidositta chloris Grant, Ibis, 1905, p. 595.

No. 148. ♂ ad. Maungahaumia, 2300 ft., July 31st, 1906. Total length 3·3 inches. Iris dark brown; tarsus black, with the posterior edge gamboge; feet brownish black; soles bright gamboge; claws black.

No. 131. ♀. Maungahaumia, 3000 ft., May 24th, 1906. Total length 3·2 inches. Iris black; bill black. Inside of the mouth pale dirty yellow, with the edge, towards the gape, bright orange, and the tips blackish; tarsus black in front, gamboge posteriorly; upper surface of the feet brownish black; soles bright gamboge; claws black.

No. 132. ♀. Maungahaumia, 3000 ft., May 24th, 1906. Total length 3·3 inches. Iris black; soft parts same as in No. 131, but slightly brighter.

The Rifleman was common in the Tawa and mixed bush and still more so in the birch, but was never noticed in the open Tawhera, and although I saw so much of this little bird, I learnt but little of its habits. To me its daily routine ever seemed the same and in all its actions it displayed but little variation. In April it was usually seen in couples, but often a party of four or five individuals was noticed—evidently late broods. After that it was invariably found in pairs. Each pair seems to have its own beat and to traverse it daily with great regularity, never wandering far from its home, and even when the bush went down the birds remained in the felled timber about these spots, and must perish in large numbers when the day of fire arrives.

This energetic little denizen of the darker recesses of the forest may be observed with slightly drooped and ever-flicking wings hunting up and along the moss-clad lower branches, occasionally darting up and hovering at the moss and ferns on some great bole, or describing an upward spiral flight around the trunk.

Although apparently of a trustful nature, it is easily alarmed, and if interfered with immediately becomes shy and wild. Its faint insect-like call—a single "chit"—so often heard in winter, is rarely noticed in the spring, and at that season the birds become more shy and the pair keep closer together while hunting for their food; this appears to be obtained chiefly among the moss and ferns with which the trees are festooned. In winter they were fond of visiting the camps for scraps thrown outside, and there I have watched them taking small particles of meat, but they never stayed more than a few minutes at a time, and although the voracious Blight-bird (*Zosterops cærulescens*) often fell a victim to the camp cat, the Rifleman was far too alert to be caught.

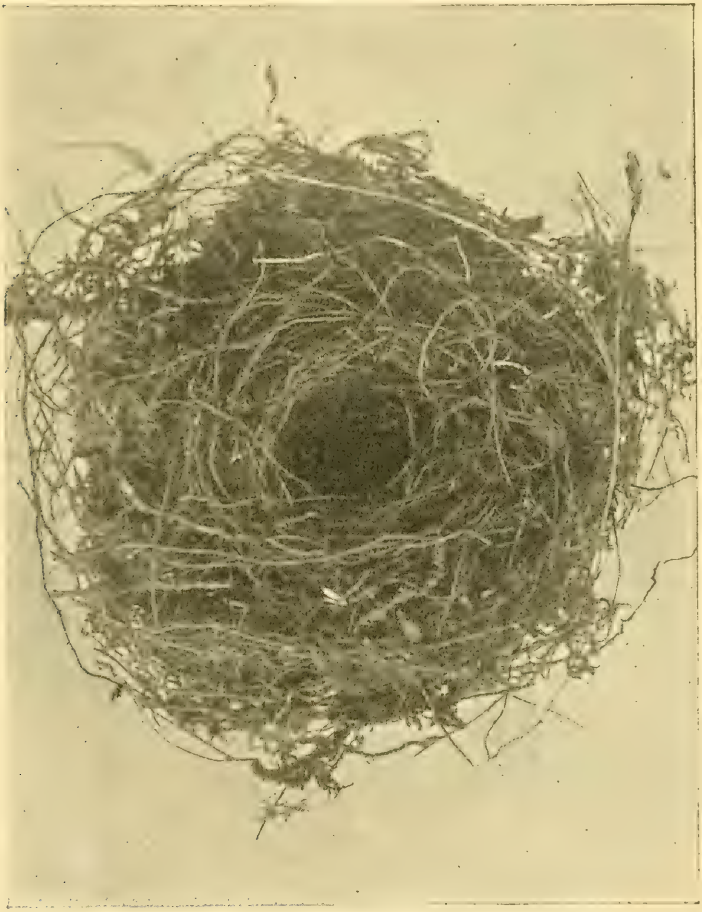
I had often tried to attract the attention of these little birds, but was never successful, until, one day in October, chancing to make a scraping noise at my tent-door, I was surprised to hear a faint rattling note, and found the male, closely followed by the female, within a foot of me. They were both much excited and their twitching little wings were drooped much lower than usual.

I had expected to find them breeding early in the spring, but, save perhaps for a slight shyness, I could detect no signs of nesting in their manner at that time, and it was not until the last few days of my stay that a pair was observed carrying material into a network of small roots at the top of a steep rocky face over a creek in felled bush. I had watched this pair for months, and, even now that I had found their nesting-place, their general movements did not betray the fact that they were breeding. Both birds were carrying material and entering the overhanging roots, but their visits were very infrequent. I fancy some considerable time must elapse between the start and the completion of the nest. I was forced to take it on October 12th, when it appeared complete, but was empty, and as it was a matter of impossibility to photograph it *in situ*, I had to remove the nest to another spot to do so, after getting a picture of the surroundings.

It was placed about eight inches in amidst a network of roots, with the base resting on the damp mould, and was not discernible from the outside. Over it and the roots lay the butt of a felled sapling, which projected some inches outwards and afforded a momentary resting-place ere the birds slipped in under it to their nest. On emerging they invariably darted suddenly out from directly under this limb, and flew some distance up or down the creek before alighting in the felled stuff. While taking the nest, I never saw the birds, but once heard the rattling note close to me.

As a detailed description of the nest of *Acanthidositta chloris* has not, I believe, been published, the following particulars may not be out of place:—Judging from illustrations and descriptions, it is not unlike that of *Xenicus gilviventris* figured on page 250 of Buller's 'Birds of New Zealand' (2nd edition, vol. i.) and described on page 112.

Text-fig. 32.



Nest of *Acanthidositta chloris.*

The nest (text-fig. 32)—a marvel of labour and constructive skill—is a very compact oval ball, with one end slightly flattened, and measures in height 5 inches, in breadth 5·1 inches, and in length 5·5 inches. It is composed of very fine rootlets much interwoven with a little moss, a few leaf-skeletons, and one or two thin pieces of dry ribbon-like bark. The flattened end is wholly composed of very tightly interwoven rootlets, through which the entrance, ·85 inch in diameter, tunnels for 1·8 inches to the circular egg-chamber, about 2·5 inches in diameter, situated towards the other end of the oval. As the nest was placed with its longer axis at an angle of about 30° to the horizon, and the tunnel was horizontal, the entrance opened towards the top of the egg-chamber. This cavity is lined with brush-like particles of brown fern-down and very fine moss, well felted together. The most characteristic feature of the nest is the long tunnel-like entrance through the thickest and most closely woven part.

The Rifleman is common in the wooded ranges of this district.

17. Glaucopis wilsoni.

Glaucopis wilsoni Buller, B. New Zeal. i. pt. i. p. 1, pl. i. (1887).

The Blue-wattled Crow frequented the lighter-timbered lower spurs of Tawhera and Manuka, where, in early winter, parties of from four to seven individuals were frequently met with feeding in the tops. Preference was shown for the points of these spurs, where they could enjoy the sun. They were not noticed in the damp gullies. They were rarely observed after July, but in the spring (October) a few pairs were seen or heard in the low mixed Tawhera bush. They were seldom found in the Tawa bush and never high up, nor were they noticed on the birch-ridge.

Although the members of the parties display marvellous agility among the branches, they travel no great distance through the bush, and may be found for days about the same spot. Only on one occasion were they noticed fairly on the wing, as they dropped with widespread wing- and tail-feathers—a floating flight—across a narrow creek into the bush below.

No notes were heard when the birds were feeding; but on sunny mornings, especially after rain, nothing more enchanting is to be heard in the bush than the long-drawn flute- and organ-like notes of the measured strains of a party of these birds, beautifully rendered with many of the notes in chord. At other times, with other notes, they become monotonous—I fancy a sign of impending rain. From one of its richest notes, the Crow has been called "Bell-bird" by the bushmen; unfortunately this name is now usually applied to it, and leads to confusion when speaking of *Anthornis*, the true Bell-bird.

The Crow probably breeds in this locality, and does not ascend much higher for that purpose. A tree containing a nest, which could only be assigned to this bird, was felled in heavy Tawhera and pairs of birds were in the vicinity in the middle of October.

In winter they occasionally descend to the lower bush-country (2000 ft.). They are distributed over the greater part of the east coast bush-land, but are very local.

If we leave out the Huia (*Heteralocha acutirostris*), which does not extend so far north, there remain some twenty species of North Island birds which may be called truly arboreal. Of these, fifteen have been enumerated above as observed in the Maungahaumia bush in 1906. And it must be borne in mind that none of them are rare—some indeed quite common—and that it would be quite possible to see all of them in one day. Of the five remaining species, *Cyanorhamphus novæ-zealandiæ* was possibly overlooked, *Eudynamis taitensis* had probably not arrived when I left, and, although they are considered so rare, I have still great hopes of meeting with *Creadion carunculatus*, *Turnagra tanagra*, and *Pogonornis cincta*.

These notes would hardly be complete without some mention of the imported species observed during my stay. They were few in number.

A single Sparrow (*Passer domesticus*) was seen on the pack-track on the birch-ridge in April; two Blackbirds

(*Turdus merula*) were noticed at the end of September in bush which had been felled some months before; while a Chaffinch (*Fringilla cœlebs*) stayed about my camp for three or four days just after July's snowfall.

The late Sir Walter Buller predicted the approaching extinction of many of our birds, and that some twenty years ago. Still I feel certain that many of the birds he mentioned are by no means rare in the localities best suited to them, and where their natural food exists, in much of our untouched high forest country. But it is not of the slightest use looking for them in the patches of bush remaining in the settled districts—cut off as they are from the larger areas—where the undergrowth, so necessary to the well-being of many of our bush-birds, has been destroyed by stock. Here, with but one or two exceptions, the bush is peopled by an alarming number of exotic birds; but in the high virgin forest the observer will still find most of our indigenous species, while those that are imported are absent.

I now close these notes, which give but a poor idea of one factor in the extermination of our birds, with a hope that others may be induced to investigate the remaining forests of the Colony (particularly those of the North Island) and so help to bring home the fact that some of the New Zealand bush is, at present, by no means so destitute of native avian life as we have hitherto supposed. We can easily forecast its future.

APPENDIX.

On the Species of the Genus Pseudogerygone.

By W. R. Ogilvie-Grant.

Mr. McLean has asked me to look over his interesting notes on the habits of certain species of birds found in the North Island of New Zealand and to verify the identification of those specimens about which he was doubtful. I have done this with pleasure, and take the opportunity of adding the following remarks.

Mr. McLean has especially directed my attention to a

Warbler (*Pseudogerygone*) which he procured in the bush at Maungahaumia, at an elevation of 2000 feet. He says that the bird appears to differ from lowland examples of *P. flaviventris* (G. R. Gray) in having the iris dull yellowish-pink instead of clear bright red, almost crimson. Of the two male specimens forwarded by Mr. McLean, one (no. 143) is fully adult, while the other is apparently a bird of the year. In the general colour of the plumage of their upper parts both resemble the three examples of *P. igata* (Q. & G.) procured by Lord Ranfurly from Dusky Sound, South Island, and recorded in my paper on his birds (*cf.* 'Ibis,' 1905, p. 588), but the rump is more like the back and not of so brown an olive and there is a conspicuous black spot in front of the eye which is wanting in *P. igata*; the latter, moreover, has the iris *black*.

Mr. McLean's birds differ much from specimens of *P. flaviventris*, the type of which is fairly well figured in the Voyage of the 'Erebus' and 'Terror' (Birds, pl. iv. fig. 1). Of *P. flaviventris* there are six specimens in the British Museum, one immature and five adults in worn plumage; of the latter, three from the Bay of Islands (including the type specimen) were no doubt procured in the breeding-season, having been collected at some date between the 18th of August and the middle of November (*cf.* Hooker, Voy. 'Erebus' & 'Terror,' p. vii).

In mentioning what appeared to be the characteristic differences between *P. flaviventris* and *P. igata* in the paper cited above, I may have laid too much stress on the difference in colour of the plumage without making sufficient allowance for seasonal change. It is a fact that the adult specimens of *P. flaviventris* in the British Museum are in worn breeding-plumage, while the birds sent by Mr. McLean in freshly-moulted plumage were killed in winter (26th of May and the 9th of July), as also were the specimens of *P. igata* sent by Lord Ranfurly and procured in March, June, and July.

It is impossible that Mr. McLean's birds with their characteristic black spot in front of the eye can be *P. igata*. They are also apparently distinct from *P. flaviventris*, but it will be necessary to have a series of winter specimens of the latter species from the lowlands of the North Island before one can point out the differences between that form and the highland form now under consideration.

The various New Zealand forms of this genus which have been described, or which have to be considered, are as follows:—

1. Pseudogerygone flaviventris (G. R. Gray).

Gerygone flaviventris G. R. Gray, Voy. Ereb. & Terror, Birds, p. 5, pl. iv. fig. 1 (1844).

Gerygone assimilis Buller, Essay Orn. N.Z. p. 9, footnote (1865).

Gerygone aucklandica Pelz. Reise Novara, Vög. p. 65 (1865).

Type. Adult. Bay of Islands, north of North Island (*Lieut. A. Smith*): Voyage of the 'Erebus' and 'Terror.'

Adult male (breeding-plumage). *Iris crimson.* Above dark olive-brown, with a more olive tinge on the lower back and rump; an indistinct grey superciliary stripe; *lores*, cheeks, and underparts grey; axillaries and middle of the belly whitish, tinged with yellowish on the flanks and under tail-coverts.

In his original description Gray writes: "front, throat, and breast greyish-white"; but this is a mistake, for the forehead is olive-brown like the rest of the head.

The British Museum possesses six examples of *P. flaviventris* including the type specimen.

Through the kindness of Dr. Lorenz I have been permitted to examine the type of *G. aucklandica* Pelz., and I have no doubt that it is an immature example of *P. flaviventris*.

Type of *G. aucklandica*. Immature. Near Auckland, north of North Island, 5th January.

Immature. Iris umber-brown. Above greyish-brown washed with olive; breast grey, the sides washed with olive; throat, belly, under wing- and tail-coverts almost white.

2. PSEUDOGERYGONE SYLVESTRIS (Potts).

Gerygone sylvestris Potts, Tr. New Zeal. Inst. v. p. 177 (1873).

Pseudogerygone sylvestris Lorenz-Liburnau, Ann. Hofmus. Wien, xvii. p. 305, pl. xii. fig. 1 (1902).

Type. ♂ adult. Between Okarita and Lake Mapowrika, west of South Island, 20th December (*T. H. Potts*).

Adult male (breeding-plumage). *Iris blood-red.* Above dark olivaceous, shading into "yellowish" on the upper tail-coverts; cheeks dark grey, darkest in a line from the gape through the eye; chin, neck, and breast pale grey; abdomen and under wing-coverts white.

Presuming that the specimens procured by Reischek at Chalky Sound are typical examples of *P. sylvestris* (Potts), I cannot find any definite character by which that species can be separated from examples of *P. flaviventris* from the North Island. In the female specimen from Chalky Sound the ear-coverts appear to be rather more olive, while in *P. flaviventris* they are grey, but this difference is slight.

♂ ♀ adult. Chalky Sound, south-west of South Island, January 1887 (*A. Reischek*).

The description of the female specimen kindly sent me for examination by Dr. Lorenz is as follows:—

Adult female. Colour of iris not recorded. Above olive-brown, becoming yellowish-olive towards the tail; lores dark grey; chin, throat, and breast grey; abdomen pure white, flanks * very pale cream-coloured.

3. PSEUDOGERYGONE MACLEANI, sp. n.

Type. ♂ adult. Maungahaumia, 2000 feet, north-west of Poverty Bay, north-east of North Island, 8th July, 1906 (*J. C. McLean*).

Adult male (winter plumage). *Iris dull yellowish-pink.* Above olive-brown, somewhat brighter on the lower back and rump; *lores conspicuously blackish*; superciliary stripes, cheeks, ear-coverts, chin, throat, and sides of the breast grey; middle of the breast and belly white; axillaries and under tail-coverts white tinged with yellow; sides and flanks strongly washed with yellowish-olive. Total length 4·5 inches; wing 2·2; tail 2·0; tarsus 0·8.

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* In the original we find "die Flecken sind sehr blasscrême." No doubt the word "Flecken" is a misprint.

4. Pseudogerygone igata (Quoy & Gaim.).

Curruca igata Quoy et Gaim. Voy. de l'Astrol., Zool. i. p. 201, pl. xi. fig. 2 (1830).

Gerygone igata Sharpe, Voy. 'Erebus' & 'Terror,' Birds, App. p. 25 (1875).

Pseudogerygone igata Lorenz-Liburnau, Ann. Hofmus. Wien, xvii. p. 305 (1902).

Type. Bay of Tasman, north of South Island: Voyage of the 'Astrolabe.'

? *Immature. Iris black.* Above olive, shading into rufous on the rump; lores and eyebrow-stripes whitish; throat, belly, and under tail-coverts white, washed with yellow; sides of the breast and the flanks yellowish-olive.

Dr. Lorenz has recorded a pair of *P. igata* from Termakau, west of South Island, October 1877 (*A. Reischek*). He has kindly sent me the female example for examination, and it closely resembles the three examples from Dusky Sound (*Earl of Ranfurly*) in the British Museum.

From these descriptions it seems fairly clear that three, or possibly four, species of *Pseudogerygone* occur in the North and South Islands of New Zealand. With the material at present available it is impossible to arrive at any satisfactory conclusion, but I hope before long to receive a sufficient series of specimens for that purpose.

Key to the Species.

A. Chin, throat, and breast grey; belly white; sides and flanks tinged with yellowish. Iris crimson.	
Ear-coverts grey	*P. flaviventris.*
Ear-coverts olive	*P. sylvestris.*
B. Chin, throat, and sides of the breast grey; middle of the breast and belly white; sides and flanks washed with yellowish-olive.	
Lores conspicuously black; iris yellowish-pink	*P. macleani.*
Lores grey; iris black	*P. igata.*

XXX.—*On the Birds of Margarita Island, Venezuela.*

By Percy R. Lowe, B.A., M.B., &c.

I have thought it worth while to place on record the birds which I have observed during two flying visits to this island: once in January 1904, when Dr. Bowdler Sharpe and I made a small collection; and again in March 1906, when I obtained a somewhat larger number. Small though the series necessarily was, it is interesting as being the first to arrive in England from this island and as containing so many examples which differ more or less from the mainland forms. The specimens which we collected are referable to fifty species.

Two American naturalists (Lieut. Robinson and Mr. Austin H. Clark) have previously recorded the results of their observations and collections in Margarita (see Proc. U.S. Nat. Mus. vol. xviii. pp. 649–685, and 'The Auk,' vol. xix. No. 3, pp. 258–267).

We arrived off the island (on our first visit) on Jan. 6, 1904, in the steam yacht 'Emerald' (the first turbine yacht, by the way, to cross the Atlantic), and it was due to the kindness and hospitality of Sir Frederic Johnstone and Lady Wilton that we were lucky enough to have such an expert in bird-lore as Dr. Sharpe with us.

After a little difficulty in deciding the question as to our proper objective, owing to the confusion of names on the chart and in the sailing-directions, we at length dropped our anchor off Porlemar, about a mile and a half from the shore. This rather shabby and squalid collection of adobe houses and mud-and-wattle huts does duty as the only port of Margarita. A small fleet of pearl-fishing boats anchored in the roadstead was about the only evidence of industry or activity apparent.

Niño, one of Christopher Columbus's lieutenants, came here in 1499, also in search of the pearls, and was the first person from the Old World to land on the island.

Seen from our anchorage, Margarita, although possessing a certain charm in virtue of its wild appearance, was not prepossessing. We were fresh from the riotous vegetation and verdant wonders of Trinidad, and were hardly prepared for the forbidding and almost cruel aspect of nature as it exists on this offshoot from the mainland of Venezuela. In the space of a bare eighteen hours' sea-passage, rampant growths of tropical forests had given place to bare mountains, sandy wastes, and scrubby plains. One could hardly have experienced a more striking contrast.

The Island of Margarita is thirty-seven miles in length, and consists of two mountainous masses of rock (Archæan schists), connected by a low sandy isthmus. In places this isthmus is very narrow, and, as it is roughly ten miles long, the island, when viewed from only a short distance to the north or south, appears as two islands.

At the eastern end, where we first landed, is a formidable chain of mountains much broken up into ridges and spurs, between which are cultivated valleys. In the centre of this chain rises Mount Margarita to a height of about 3240 feet.

The western portion of the island consists of practically an unbroken rocky mass which bears the name of Cerros de Macanao. These rocks reach an altitude of 2304 feet above sea-level. Towards their summits they are very bare and of a deep ferruginous tint.

The whole area of the island is 440 square miles, and it is said to have a population of 20,000.

The eastern extremity, Punta de la Ballena, is only seventeen miles distant from the nearest point of Venezuela. The island is not well watered. A few small streams find their way down from the southern face of the mountains, swelling, no doubt, during rains to respectable torrents, but with the exception of one stream which enters the sea to the east of Porlemar they are quite insignificant.

From the height of the mountains one would have expected a goodly quantity of rain to be extracted from the moisture-laden trade-winds, but apparently this is intercepted by the outer chain of islands forming the Windward group of the Antilles, and so Margarita remains a dry and somewhat parched-up island. Here and there are a few small lagoons and water-holes, always sure "finds" for the bird-collector, and towards the western extremity of the island is a large lagoon-like inlet from the sea of many acres in extent. It is bordered with the inevitable fringe of mangroves and studded with a maze of small islands. Low swampy ground and sandy wastes of prickly cactus-scrub border it on two sides, and the locality forms a perfect treasure-ground for the ornithologist.

A low-lying shore-belt surrounds nearly the whole island and extends inland for about three or four miles. This belt is dry, infertile, flat, and very hot.

Sun-baked patches of crude red soil alternate with patches of sand or gravel. The soil supports a flourishing and hopeless tangle of cactus-scrub (*Cereus* and *Opuntia*). Everything, in fact, that grows in this zone is armed with terribly long thorns and prickles. The growth of upright cacti is so thick in places that constant and worrying detours are continually needed to make any progress. We did not forget our experiences of it for many a day. After each excursion ashore quite a long time had to be spent in extracting the poisonous thorns from various parts of our bodies, and some of us suffered from painful abscesses which were long in healing.

To retrieve birds in this sort of scrub is often a long and tedious process, and much time is wasted in this way, while the explorer is converted into an animated pin-cushion.

In spite of these troubles, however, we found birds in this belt in plenty—*Polioptila, Dendroplex, Melanerpes, Chamæpelia, Scardafella, Eupsychortyx, Cardinalis, Icterus, Doleromyia, Conurus, Amazona, Cœreba, Mimus,* &c.

Further inland a region of extremely broken ground and low hillocks forms the approach to the central chain of mountains. This area is occupied in places by cocoanut and banana plantations, as well as small cultivated holdings, where the visitor is always sure of finding birds.

El Valle, one of the principal villages on the island, is situated in this zone, and I spent some time collecting in the high ground above it. Here I obtained specimens of *Quiscalus, Tachyphonus, Bucco, Icterus, Scardafella, Tanagra, Synallaxis, Amazilia, Chlorostilbon,* &c. I also, on two occasions, saw Swifts (*Chætura lawrencei?*), but though I waited patiently for a shot they always flew too high for me to obtain any specimens.

During both my visits I spent some time collecting round a very large lagoon and mangrove-swamp situated at the western extremity of the island. Had my time been less occupied with the more interesting land-birds there would have been little difficulty in making a very large collection here of the great variety of sea-birds, Herons, Waders, Plovers, &c.

Thus I either saw or shot:—Pelicans, Cormorants, Herons (*Ardea herodias, A. cærulea, A. occidentalis, A. candidissima,* and *A. butorides*), Ospreys, Turkey-Vultures, Buzzards, Caracaras, Flamingos, Kingfishers (*Ceryle torquata* and *C. alcyon*), Spoonbills, Scarlet Ibises, and a host of Plovers and Waders either recorded below or in the papers of Capt. Robinson and Mr. Clark.

At this end of the island is a very primitive fishing-village, and I noticed with interest about a dozen examples of *Ardea tricolor* which were busily catching small fry in a shallow piece of brackish water close to it. These birds were quite tame and wandered about in and out of the huts catching "grasshoppers" and vermin, with which the place was overrun. An Oyster-catcher, which was walking about on the beach in front of some huts, allowed me to take a leisurely photograph of it within five yards distance.

I made a hurried visit to the high woods during my second visit, but saw nothing of the Curassow, Cuckoo (*Diplopterus nævius*), or Thrush (*Turdus carbonarius*). Just before we left, however, a native brought on board a live Curassow (*Ortalis ruficauda*) with its wings clipped and in poor plumage. He assured me that the country people keep these birds alive and cross them with their tame poultry.

I take this opportunity of expressing my gratitude to

Dr. Bowdler Sharpe for his invaluable assistance in preparing my paper. My interest in ornithology is entirely due to his encouragement and instruction. To his excellent assistant, Mr. Chubb, I am also deeply indebted.

EUPSYCHORTYX PALLIDUS.

Eupsychortyx pallidus Richmond, Proc. U.S. Nat. Mus. xviii. p. 657 (1895); Clark, Auk, xix. p. 260 (1902).

a, b. ad. Jan. 6, 1904. [R. B. S.]
c. ad. Jan. 9, 1904. [P. R. L.]

In comparison with birds from British Guiana (*E. sonnini*) I find that these specimens are much paler.

We came across two coveys in the cactus-scrub towards the western end of the island. They are stated to be common among the foot-hills, but I found none there during my second visit to the island in 1906.

SCARDAFELLA RIDGWAYI.

Scardafella ridgwayi Richmond, Proc. U.S. Nat. Mus. xviii. p. 660 (1895); Clark, Auk, xix. p. 261 (1902).

a, b. ♂ ad. } Jan. 6, 1904. [P. R. L.]
c. ♀ ad. }
d. ♀ ad. Jan. 7, 1904. [R. B. S.]
e. ♂ ad. March 22, 1906. [P. R. L.]
f, g, h. ♀ ad. March 23, 1906. [P. R. L.]

These Doves are very common in the low-lying sandy cactus-scrub. The peculiar rattle of their wings as they take to flight becomes a very familiar sound to the wanderer through the scrub. They have a rapid flight, much faster than that of *Chamæpelia.*

One of the females which I procured on the 23rd of March was apparently nesting, as it had a large egg in the oviduct.

As this bird lives in the sandy wastes of the island, one might have expected it to have assumed a paler tint, similar to that of several other forms on the island; but, on the contrary, Mr. Richmond says that it differs from *S. squamosa* "in the broader black edgings to the feathers" and that "the vinaceous colour is a little deeper."

CHAMÆPELIA PASSERINA PERPALLIDA.

Columbigallina passerina perpallida Hartert, Ibis, 1903, p. 304.

Columbigallina passerina Berl. J. f. O. 1892, p. 97 (Curaçao); Robinson, Proc. U.S. Nat. Mus. xviii. p. 659 (1895).

a, b. ad. et juv. Jan. 6, 1904. [R. B. S.]
c, d. ♂ ad. et ♀ juv. Jan. 6, 1904. [P. R. L.]
e, f. ♂; *g, h, i.* ♀ ad. March 22, 1906. [P. R. L.]

I have compared this series with specimens from Curaçao, Bonaire, and Aruba, kindly lent me for comparison by the Tring Museum, and I can discover no differences. Apparently this pale form inhabits all the islands lying north of the mainland of Venezuela, for I have in my collection a series of eight Ground-Doves shot on Blanquilla Island which are identical with this bird, and I have recently found the same form on the Los Hermanos group of islands.

LEPTOPTILA VERREAUXI.

Leptotila insularis Richmond, Proc. U.S. Nat. Mus. xviii. p. 659 (1895); Clark, Auk, xix. p. 261 (1902).

a, b. ♂ ad.
c. juv. ? sex. } March 21–23, 1906. [P. R. L.]

Although the two adult specimens which I obtained agree in coloration of plumage with Mr. Richmond's description of the Margarita bird, yet I find that they can be exactly matched with specimens of *L. verreauxi* from Trinidad.

The measurement of the wings in both is 5·30 inches.

The colours of the soft parts in the quite fresh state are:—Circumorbital space bright cobalt-blue. Iris dirty yellow. Bill uniformly black; tarsi and feet reddish pink.

Mr. Hellmayr ('Novitates Zoologicæ,' vol. xiii. no. 1, 1906) has lately stated in a paper on the birds of Trinidad that "the birds from Trinidad, Tobago, and Venezuela are absolutely identical with the one from Margarita Island."

OCHTHODROMUS WILSONIUS RUFINUCHA.

Ægialitis wilsonia rufinucha Ridgw.; Robinson, Proc. U.S. Nat. Mus. xviii. p. 656 (1895).

Ochthodromus wilsoni (Vieill.); Sharpe, Cat. B. Brit. Mus. xxiv. p. 214, part. (1896).

a, b. ♂; *c, d.* ♀. Jan. 6, 1904. [R. B. S.]

e, f. ♂. Jan. 8, 1904. [P. R. L.]

g, h, i. ad. March 20, 1906. [P. R. L.]

These Plovers were very common on the sandy inland stretches to the east of the big lagoon at the western end of the island. When stationary they are easily overlooked, as they exactly match the colour of the ground they frequent. On settling again after being disturbed the whole flock runs forward a little way and then remains motionless with the backs of the birds directed towards the intruder.

In January the males were moulting and assuming the rufous ear-coverts and collar on the fore-neck (*cf.* Sharpe, *l. c.*).

These birds are very fond of running along the hard wet sand left by receding waves on the sea-shore in search of minute crustacea.

ÆGIALITIS SEMIPALMATA.

Ægialeus semipalmatus (Bonap.); Sharpe, Cat. B. Brit. Mus. xxiv. p. 250 (1896).

Ægialitis semipalmata Robinson, Proc. U.S. Nat. Mus. xviii. p. 656 (1895).

a. ♀ ad. In winter plumage. Jan. 9, 1904. [P. R. L.]

TRINGOIDES MACULARIUS.

Tringoides macularia (Linn.); Sharpe, Cat. B. Brit. Mus. xxiv. p. 468 (1896).

a. ♂ imm. Jan. 6, 1904. [R. B. S.]

LIMONITES MINUTILLA.

Limonites minutilla (Vieill.); Sharpe, Cat. B. Brit. Mus. xxiv. p. 548 (1896).

a. ad. Jan. 8, 1904. [P. R. L.]

SYMPHEMIA SEMIPALMATA.

Scolopax semipalmata Gm. Syst. Nat. i. p. 659 (1788).

Symphemia semipalmata Sharpe, Cat. B. Brit. Mus. xxiv. p. 405 (1896).

a. Ad. March 24, 1906. [P. R. L.]

There were several flocks of these birds on the margins of the lagoon at the west end of the island.

TOTANUS FLAVIPES.

Totanus flavipes Sharpe, Cat. B. Brit. Mus. xxiv. p. 431 (1896).

a, b. March 23, 1906. [P. R. L.]

A good many of these Yellowshanks frequent the muddy shores of the lagoons at the west end of the island.

ARDEA HERODIAS.

Ardea herodias Sharpe, Cat. B. Brit. Mus. xxvi. p. 80 (1898).

a. ♂ ad. Margarita Island, Jan. 6, 1904. [P. R. L.]

An example of *Ardea occidentalis* was caught alive and liberated.

HERODIAS EGRETTA.

Herodias egretta Sharpe, Cat. B. Brit. Mus. xxvi. p. 95 (1898); id. Hand-l. B. i. p. 195 (1899).

One adult. Margarita Island, Jan. 1904.

LEUCOPHOYX CANDIDISSIMA.

Leucophoyx candidissima Sharpe, Cat. B. Brit. Mus. xxvi. p. 124 (1898).

Garzetta candidissima Robinson, Proc. U.S. Nat. Mus. xviii. p. 655 (1895); Clark, Auk, xix. p. 260 (1902).

One adult. Margarita Island, Jan. 6, 1904.

BUTORIDES VIRESCENS ROBINSONI.

Butorides robinsoni Richmond, Proc. U.S. Nat. Mus. vol. xviii. p. 655 (1895).

a. ♂ ad.
b. ♀ imm. } March 21, 1906. [P. R. L.]

Irides chrome-yellow.

My adult male approaches in its plumage adult specimens of *B. striata* from S. Paulo, but is not quite so slaty-grey on the cheeks, neck, and sides of body, nor are the streaks on the throat and fore-neck of such a light tawny colour as in *B. striata,* but are more dusky brown. The sides of the face in the Margarita bird are dull slaty-brown, as are also the feathers of the neck.

The immature bird has the sides of the face rufous, which is characteristic rather of *B. virescens*, so that it would appear that *B. robinsoni* holds an intermediate position between *B. striata* and *B. virescens.*

An immature bird which I shot in the Laguna del Obispo, on the northern coast of Venezuela, opposite Margarita, appears to be *B. robinsoni* rather than *B. striata,* while a specimen which I shot in Trinidad is undoubtedly *B. striata.*

A bird which I obtained on Blanquilla Island tends towards *B. virescens,* but has points in which it resembles *B. striata.*

Evidently, therefore, in the islands along these shores the ranges of the two species overlap and the two forms interbreed.

Since writing the above, I notice that Mr. Hellmayr ("Birds of Trinidad," Nov. Zool. xviii. no. 1, 1906, p. 51) states, under the heading *Butorides virescens* :—"As far as I know, this species has not been taken before on the island of Trinidad; but since Mr. André sent only young birds I cannot determine to which of the numerous subspecies they should be referred." He also states that a good series from Tobago appear to be true *B. virescens,* which helps to bear out the statement that the two forms tend to overlap and possibly interbreed along the northern coast of Venezuela.

CATHARTES AURA.

Cathartes aura Robinson, Proc. U.S. Nat. Mus. xviii. p. 661 (1895); Sharpe, Hand-l. B. i. p. 240 (1899); Clark, Auk, xix. p. 261 (1902).

One adult. Jan. 6, 1904. [P. R. L.]

The following note on the colour of the soft parts I took, with the help of Dr. Bowdler Sharpe, immediately I had shot this bird :—

"Bill whitish; cere and fore part of head fleshy pink, with scanty black hairs all over the head and small tufts in front of the lores, followed by a pale lemon-yellow band across the crown and round the eyes; the latter a little duller. Then a band of dull fleshy pink across the hinder crown, followed by a series of folds of lemon-yellow. The whole of the sides of the head, face, and throat dull fleshy pink."

CERCHNEIS ISABELLINA.

Cerchneis isabellina Sharpe, Hand-l. B. i. p. 278 (1899).

Falco sparverius Robinson, Proc. U.S. Nat. Mus. xviii. p. 661 (1895); Clark, Auk, xix. p. 261 (1902).

a. ♀ ad. Jan. 6, 1904. [R. B. S.]

b. ♀ ad. March 22, 1906. [P. R. L.]

Mr. Richmond has identified the specimens procured by Capt. Robinson as *Falco sparverius* (*cf.* Robinson, *t. c.* p. 661).

I have examined our specimens along with Dr. Sharpe, and consider them to be *C. isabellina* and not *C. sparverius.*

PISORHINA CHOLIBA.

Megascops choliba Berlepsch, Bull. Brit. Orn. Club, xii. p. 9 (1901).

Megascops brasilianus Robinson, Proc. U.S. Nat. Mus. xviii. p. 662 (1895); Clark, Auk, xix. p. 262 (1902).

a. ♀ ad. March 21, 1906. [P. R. L.]

This was the only example that I shot of this species, but I procured two adults and one young bird alive. The young bird and one adult died on the voyage home, and I was unable to save their skins: the survivor is now in the Zoological Society's Gardens. A bird from Trinidad agrees very closely with the bird which I shot, but the Margarita bird is somewhat paler and less rufous below.

SPEOTYTO CUNICULARIA BRACHYPTERA.

Speotyto brachyptera Richmond, Proc. U.S. Nat. Mus. xviii. p. 663 (1895); Clark, Auk, xix. p. 262 (1902).

a. ♀ ad. March 22, 1906. [P. R. L.]

Iris yellow.

I saw only one other example of this bird, although constantly on the look out for it in likely places. Mr. Richmond has separated it from *S. cunicularia,* and considers it paler and very much smaller.

My bird has the wing 5·65 inches; tail 2·40; tarsus 1·65; culmen ·55. Iris yellow.

CONURUS ÆRUGINOSUS.

Conurus æruginosus Salvad. Cat. B. Brit. Mus. xx. p. 195 (1891); Robinson, Proc. U.S. Nat. Mus. xviii. p. 664 (1895); Clark, Auk, xix. p. 261 (1902).

a, b. ♂; *c, d, e.* ♀. Jan. 6, 1904. [R. B. S.]

f, g. ♂ ad. March 20, 1906. [P. R. L.]

This is a common bird in Margarita. It frequents the low-lying coast-belt as well as the hills. Large flocks used to fly over regularly in the evening from the tall mangrove-trees lining the large lagoon at the west end of the island, making their way towards the foot-hills, where apparently they roosted. The bird differs in no way from the form found on the mainland.

AMAZONA OCHROPTERA.

Amazona ochroptera Sharpe, Hand-l. B. ii. p. 21 (1900).

Chrysotis ochroptera Salvad. Cat. B. Brit. Mus. xx. p. 288 (1891).

a, b. ad. Jan. 6, 1904. [R. B. S.]

c, d. ♂ ad. March 19, 1906. [P. R. L.]

I saw some of these Parrots in the high trees above El Valle, where Capt. Robinson observed the species in large flocks, but there were also several parties round the lagoon at the west end of the island. I notice that Mr. Richmond refers the Amazons of Margarita Island to *A. amazonica,* but to me they seem to be quite distinct from that species, agreeing entirely with *A. ochroptera.* It is to be noticed that we found two specimens with green on the cheeks and sides of the face as in *C. rothschildi* (*cf.* Hartert, 'Ibis,' 1893, p. 328, pl. ix.).

In the case of the Margarita bird I should say that the green on the face is indicative of a younger age, and that it is the very old birds which get the sides of the face, as well as the crown and throat, yellow.

One male bird which I shot in March 1906 has the green mandibular bar well marked on one side, but entirely absent on the other. The feathers of the throat in this specimen are yellowish, with a strong tinge of salmon-colour at the bases.

Stenopsis cayannensis.

Stenopsis cayannensis Hartert, Cat. B. Brit. Mus. xvi. p. 583 (1892); Clark, Auk, xix. p. 263 (1902).

a. ♂ ad. March 21, 1906. [P. R. L.]

I shot this specimen on the sea-shore about a mile to the east of Porlemar. As I was never ashore after sunset, I cannot say whether it is common or not. Capt. Robinson did not secure any examples.

Doleromyia pallida.

Doleromya pallida Richmond, Auk, xii. p. 369 (1895) (Margarita); Robinson, Proc. U.S. Nat. Mus. xviii. p. 668 (1895); Clark, Auk, xix. p. 263 (1902).

Leucippus fallax Hartert, Tierreich, Trochilidæ, p. 40, part. (1900).

a. ad. June 6, 1904. [R. B. S.]

b–h. ♂; *i.* ♀ ad. March 19–24, 1906. [P. R. L.]

Very common everywhere in the cactus-scrub. This form is uniformly paler below than *D. fallax*, and in other respects agrees with Mr. Richmond's observations.

Amazilia aliciæ.

Amazilia aliciæ Richmond, Auk, xii., Oct. 1895, p. 368; id. Proc. U.S. Nat. Mus. vol. xviii. p. 670 (1895).

a, b, c. ♂ ad.
d. ♀ ad. } March 24, 1906. [P. R. L.]
e. ad.

Two of my specimens are moulting, while the other three are in good plumage. I only saw this bird in the heights above El Valle, among the tall forest-trees. It was busy feeding on some scarlet *Salvia*-like flowers. This form is allied to, but distinct from, *A. feliciæ*, which inhabits the opposite mainland.

CHRYSOLAMPIS MOSQUITUS.

Chrysolampis mosquitus Salvin, Cat. B. xvi. p. 113 (1892); Sharpe, Hand-l. B. ii. p. 119 (1900); Hartert, Tierreich, Trochilidæ, p. 100 (1900).

a. ♂ ad. March 20, 1906. [P. R. L.]

This was the only specimen of this species which I saw on Margarita. Neither Capt. Robinson nor Mr. Clark met with the bird. On Blanquilla Island, which is 60 miles further north and so 60 miles farther from the mainland, I found it extremely common in April 1906. The vegetation and conditions generally on the two islands, so far as this bird is concerned, are identical.

Curiously enough, during a second visit to Blanquilla in February 1907, we only saw and shot one example of this form, although we covered more ground and explored the island more thoroughly than during our first visit.

CHLOROSTILBON CARIBBÆUS.

Chlorostilbon caribbæa Sharpe, Hand-l. B. ii. p. 113 (1900); Robinson, t. c. p. 672.

a. ♂ ad. March 24, 1906. [P. R. L.]

This bird does not differ from examples from other localities. It is common above El Valle, but although I saw several in one clearing I only secured one skin.

BUCCO BICINCTUS.

Bucco bicinctus Robinson, Proc. U.S. Nat. Mus. xviii. p. 665 (1895); Clark, Auk, xix. p. 263 (1902).

a, b. ♀ ad. Jan. 7–8, 1904. [P. R. L.]

c, d. ad. March 19–20, 1906. [P. R. L.]

These birds frequent the bushes in the flats behind Porlemar, and I also found them in the foot-hills about El Valle. They sit very still and often exactly match their surroundings, so that one suddenly becomes aware of their presence on a bough. They have a surprisingly loud call-note: I only heard it when they were flying from one tree to another.

I can find no appreciable difference between birds from Margarita and those from the mainland.

MELANERPES SUBELEGANS.

Centurus subelegans Bonap. Consp. Avium, i. p. 119 (1850) (Venezuela).

Melanerpes subelegans Robinson, Proc. U.S. Nat. Mus. xviii. p. 666 (1895); Clark, Auk, xix. p. 263 (1902).

Melanerpes tricolor Hargitt, Cat. B. Brit. Mus. xviii. p. 174, part. (1890).

a, b. ♂ ♀ ad. Jan. 7–9, 1904. [P. R. L.]

c, d, e. ♂; *f, g, h.* ♀ ad. March 19–22, 1906. [P. R. L.]
Iris hazel.

Very common among the foot-hills and cactus-scrub.

I shot one with its head infested with worms. It had become virtually blind, a fact due to two enormous bulging prominences on either side of its head which encroached upon the orbits.

FORMICIVORA INTERMEDIA.

Formicivora intermedia Scl. Cat. B. Brit. Mus. xv. p. 250 (1890); Robinson, Proc. U.S. Nat. Mus. xviii. p. 673 (1895); Clark, Auk, xix. p. 264 (1902).

a, b. ♂.
c. ♀. } March 19–21, 1906. [P. R. L.]

The female differs from female birds from the mainland in having the upper parts of a slightly browner tint. The outer margins of the secondaries are considerably narrower than in those of continental examples.

I am unable to discover any difference in the length of the bill. Mr. Richmond says the Margarita examples have a slightly longer bill than in those from La Guayra.

THAMNOPHILUS DOLIATUS.

Thamnophilus doliatus Scl. Cat. B. Brit. Mus. xv. p. 207 (1890); Robinson, Proc. U.S. Nat. Mus. xviii. p. 673 (1895); Clark, Auk, xix. p. 264 (1902).

a. ♀ ad. March 24, 1906. [P. R. L.]

Mr. Robinson says that this bird is common in all parts of the island. I shot my specimen behind Porlemar among some bush-scrub and only saw one or two others. I observed none in 1904.

PACHYSILVIA GRISEIPES.

Hylophilus griseipes Richmond, Proc. U.S. Nat. Mus. xviii. p. 678 (1895) ; Clark, Auk, xix. p. 266 (1902).

Pachysilvia griseipes Sharpe, Hand-l. B. iv. p. 255 (1903).

a. ♀ ad. Jan. 6, 1904. [R. B. S.]

This bird was shot by Dr. Sharpe, and was the only one that he saw. In neither of my visits to the island in 1904 and 1906 did I get a single specimen. Capt. Robinson says that it is common in the coast-region, so possibly there is a local migration during the winter months to the mountains or from the mainland. Mr. Richmond has separated the Margarita bird from *P. flavipes.*

DENDROPLEX LONGIROSTRIS.

Dendroplex longirostris Richmond, Proc. U.S. Nat. Mus. xviii. p. 675 (1895).

a. ad. Jan. 9, 1904. [P. R. L.]

b–e. ♂ ad. March 19–21, 1906. [P. R. L.]

Iris hazel-brown.

The exposed culmens of my five birds measure respectively, 1·20, 1·25, 1·30, 1·20, 1·30 in. nearly. On comparing them with a series from the mainland I find that the under surface of those from Margarita is darker in colour and the upper surface a richer chestnut.

With regard to the white centres of the feathers of the lower breast referred to by Mr. Richmond, I agree with him that they are uniformly broader than in examples of *D. picirostris.* The bills are only very slightly longer.

This bird frequents the tall upright *Cerei* which grow only in the arid sandy flats of the island. One would, therefore, have expected it to conform to isabelline characteristics such as Mr. Richmond has recognised in his new species of *Eupsychortyx*, *Doleromyia*, and *Speotyto* which occur in the island : such, however, is apparently not the case.

SYNALLAXIS ALBESCENS NESIOTIS.

Synallaxis albescens nesiotis Clark, Auk, xix. p. 264 (1902).

a, b. ♂ ad. }
c. ? ♀ ad. } Margarita Isl., March 23, 1906. [P. R. L.]

Iris hazel.

These birds were moulting. As compared with specimens from the mainland, I agree with Mr. Clark as to the colour of the plumage and the measurements of wing and tail.

	Wing.	Tail.
(*a*)	2·05 in. = 54 mm.	2·75 in. = 72 mm.
(*b*)	2·15 in. = 54 mm.	67 mm.
(*c*)	2·15 in. = 55 mm.	72 mm.

TYRANNUS DOMINICENSIS.

Saint Domingo Tyrant Lath. Gen. Syn. i. p. 185 (1781: St. Domingo, Jamaica, and Cayenne).

Lanius dominicensis Gm. Syst. Nat. i. p. 302 (1788).

Tyrannus dominicensis Robinson, Proc. U.S. Nat. Mus. xviii. p. 672 (1895); Clark, Auk, xix. p. 263 (1902).

Tyrannus griseus Scl. Cat. B. Brit. Mus. xiv. p. 271 (1888).

a, b. ad. Jan. 6, 1904. [R. B. S.]

c. ♂ ad. March 24, 1904. [P. R. L.]

SUBLEGATUS ARENARUM.

Elainea arenarum Salvin, P. Z. S. 1863, p. 190 (Punta Arenas, Costa Rica); Scl. Cat. B. Brit. Mus. xiv. p. 153 (1888).

Sublegatus glaber Scl. & Salv. P. Z. S. 1868, p. 171 (Caracas); Scl. Cat. B. Brit. Mus. xiv. p. 157 (1888); Richmond, Proc. U.S. Nat. Mus. xviii. p. 673 (1895).

Sublegatus arenarum Salvin & Godman, Biol. Centr.-Amer., Aves, ii. p. 37 (1888); Clark, Auk, xix. p. 264 (1902).

a–g. ♂ ♀ ad. March 18–22, 1906. [P. R. L.]

This bird is met with everywhere along the flat coast-belts of cactus-scrub. Mr. Richmond (*l. c.*) considers the Margarita bird to be a little smaller than those from the mainland.

I find that the wing in my series varies as follows:—

4 ♂ adults, Margarita Island, from 2·7 to 2·8 inches.

3 ♀ adults, „ „ „ 2·55 to 2·65.

5 specimens Gulf of Cariaco, Venezuela, from 2·7 to 2·8.

2 specimens Laguna del Obispo, Venezuela, from 2·75 to 2·8.

It will be seen that the specimens from Margarita are of about the same dimensions as those from the Gulf of Cariaco, and probably the birds on which Mr. Richmond has remarked are females, as they are certainly smaller than the males.

MYIARCHUS TYRANNULUS.

Myiarchus tyrannulus Sclater, Cat. B. Brit. Mus. xiv. p. 251 (1888); Robinson, Proc. U.S. Nat. Mus. xviii. p. 673 (1895); Clark, Auk, xix. p. 264 (1902).

a. ad. Jan. 9, 1904. [P. R. L.]

b. ♂ ad. March 24, 1906. [P. R. L.]

TYRANNUS MELANCHOLICUS SATRAPA.

Tyrannus satrapa Licht. Nomencl. Av. Mus. Ber. p. 16 (1854: Mexico).

Tyrannus melancholicus Vieill.; Scl. Cat. B. Brit. Mus. xiv. p. 273, part. (1888).

Tyrannus melancholicus satrapa Robinson, Proc. U.S. Nat. Mus. xviii. p. 673 (1895).

a. ♂ ad. Jan. 8, 1904. [P. R. L.]

b. ♀ ad. March 24, 1906. [P. R. L.]

These are of the ordinary mainland form.

CHIROXIPHIA LANCEOLATA.

Chiroxiphia lanceolata (Wagl.); Scl. Cat. B. Brit. Mus. xiv. p. 309 (1888); Robinson, Proc. U.S. Nat. Mus. xviii. p. 672 (1895); Clark, Auk, xix. p. 263 (1902).

a. ♂ ad. March 24, 1905. [P. R. L.]

I have compared this bird with specimens from the mainland and Trinidad which I shot myself, and they appear to be quite alike.

POLIOPTILA PLUMBICEPS.

Polioptila plumbiceps Robinson, Proc. U.S. Nat. Mus. xviii. p. 681 (1895); Sharpe, Hand-l. B. iii. p. 241 (1901); Clark, Auk, xix. p. 266 (1902); Ridgway, B. N. & M. America, iii. p. 714 (1904).

a, b. ♂ ad. Jan. 6, 1904. [P. R. L.]
c–e. ♂ ad. } March 20–22, 1906. [P. R. L.]
f, g. ♀ ad. }

These birds are common in the low cactus-scrub and acacia-bushes. They flit to and fro from the low bushes with short dipping flights. When feeding they creep up and down the branches and twigs, picking at flies and insects on the leaves and stems. In this respect they behave like our Sylviæ. In March they are in full song. The cock bird takes up his position on an isolated twig above some low bush. My field-notes say: "Their song is very pretty and melodious, a series of rapid low flute-like notes slightly increasing in volume towards the end of the trill." I have never seen them behave in a manner to remind one of a Flycatcher. Mr. Clark (*l. c.*) found a nest "much like the nest of *Dendroica æstiva*."

The name *plumbiceps* does not occur in the 'Catalogue of Birds,' and has evidently escaped Dr. Bowdler Sharpe's notice. He appears to have described the Venezuelan Gnatcatcher as *Polioptila sclateri* (*cf.* Sharpe, Cat. B. x. p. 449). The principal character given by him for the latter species, viz., the absence of white along the secondaries, seems to me to be the result of the wearing away of the white edges of the feathers and not to be a specific character. In the British Museum are two specimens of *P. nigriceps* from Chiapas, Mexico, of which one has white edgings to the secondaries, and the other has them grey (like Dr. Sharpe's *P. sclateri*), but I feel sure that this is caused by the abrasion of the feathers. I should not call the Venezuelan and Margaritan birds *darker* grey on the upper surface than Mexican specimens of *P. nigriceps*. In fact, I cannot see any appreciable difference in the tint of the grey, but, if anything, the Margarita birds are slightly *paler* grey. It seems to me that the two species are exceedingly difficult to separate, and I think that *P. sclateri* will have to be united to *P. plumbeiceps*.

MIMUS GILVUS.

Mimus gilvus Robinson, Proc. U.S. Nat. Mus. xviii. p. 680 (1895); Clark, Auk, xix. p. 266 (1902).

a–c. ad. Jan. 6, 1904. [R. B. S.]

c–f. ♂ ad. Jan. 8, 1904. [P. R. L.]

g, h. ♂; *i, k, l.* ♀ ad. March 20–22, 1906. [P. R. L.]

The bills of my series average ·75 inch, so that, with Mr. Richmond, I should give the bird from Margarita a place intermediate between *M. gilvus* and *M. gilvus rostratus.*

SETOPHAGA RUTICILLA.

Setophaga ruticilla Sharpe, Cat. B. Brit. Mus. x. p. 411 (1885).

a, b. ♂ ad. March 19–20, 1906. [P. R. L.]

I shot three of these birds, which do not appear to differ in any way from the ordinary form. Neither Capt. Robinson nor Mr. Clark appear to have noticed this species on the island, and it is evidently only a straggler. I have been struck with the large quantities of subcutaneous fat with which these birds are always loaded in winter.

DENDRŒCA RUFOPILEATA.

Dendrœca rufopileata Ridgway, Proc. U.S. Nat. Mus. vii. p. 173 (1884); Berl. J. f. O. p. 76 (1892); Hartert, Ibis, v. p. 311 (1893).

a. ♀ ad. } March 20, 1906. [P. R. L.]
b. ♂ ad. }

These were the only two examples of this species that I saw, and again neither Capt. Robinson nor Mr. Clark mention it in their lists. My two examples do not differ from a series from Curaçao kindly lent me by Mr. Hartert for comparison. It is one of the commonest birds on Blanquilla Island, sixty miles further out to sea, where I obtained a dozen or more specimens in full plumage.

CŒREBA LUTEOLA.

Cœreba luteola Richmond, Proc. U.S. Nat. Mus. xviii. p. 679 (1895); Clark, Auk, xix. p. 266 (1902); Ridg. Birds of North and Middle America, part ii. p. 416 (1902).

a, b. Jan. 6, 1904. [R. B. S.]

c, d. ♀ ad. March 20, 1906. [P. R. L.]

This is by no means a common bird on the island, and I did not see a dozen individuals during my two visits. My specimens agree with four which I shot on the Cariaco Peninsula, Venezuela, opposite Margarita. These latter, besides differing markedly in the much paler tints of the grey of the throat and the yellow of the breast and abdomen, differ also in their measurements from Trinidad examples, which are larger in the wing, culmen, and tarsus.

Birds from Trinidad and various parts of Venezuela in the British Museum collection agree with my Trinidad examples in colour and measurements, but there is a specimen labelled Santa Marta, Colombia, which is again paler on the throat and under parts, although apparently fully adult, and this together with birds along the Colombian coast-region must be referred to the true *C. luteola*. Since, however, the type of *C. luteola* came from Cumaná, the Trinidad form is that which must be re-named, and I propose to call it *C. trinitatis*.

Cœreba luteola. Trinidad.

	Wing. mm.	Culmen. mm.	Tarsus. mm.
(*a*) ♂ ad. 18 iii. 1905	57	12·5	17
(*b*) „ 19 iii. 1905	57	12·5	16·5
(*c*) „ 18 iii. 1905	58	12·5	16

Cœreba luteola. Margarita.

	Wing. mm.
(*a*) ♀ ad. 23 iii. 1906	51
(*b*) „ 22 iii. 1906	52

Cœreba luteola. Laguna del Obispo, Venezuela.

	Wing. mm.	Culmen. mm.	Tarsus. mm.	Tail. mm.
(*a*) ♀ ad. 15 i. 1904	52·5	11·5	15	31
(*b*) ad. 12 i. 1904	54 6	11·5	14·5	33
(*c*) „ 11 i. 1904	56·5	11·5	15·5	33·5
(*d*) „ 12 i. 1904	54	11·2	15	31

The three specimens from Trinidad, besides differing in measurements as already shown, are very different as regards the darker and richer yellow colour on the breast and abdomen and also on the upper tail-coverts.

EUETHEIA BICOLOR OMISSA.

Phonipara bicolor Sharpe, Cat. B. Brit. Mus. xii. p. 149 (1888).

Euetheia omissa Robinson, Proc. U.S. Nat. Mus. p. 677 (1895).

Euetheia bicolor omissa Clark, Auk, xix. p. 266 (1902).

a, b. ♂ ad. }
c. ♀ ad. } Jan. 6, 1904. [R. B. S.]
d. ♂ ad. Jan. 6, 1904. [P. R. L.]
e, f. ♂ ad. March 20, 1906. [P. R. L.]
g, h, i. ♀ ad. March 21, 1906. [P. R. L.]

These birds from Margarita have a melanotic tendency as compared with specimens from the Lesser Antilles and the Bahaman *E. bicolor.* They agree with specimens which I have in my collection from Trinidad and the Cariaco Peninsula, Venezuela, and would seem to answer to the description given of *E. bicolor omissa* by Jardine. Further north in the island of Blanquilla this Finch has a still more melanotic tendency, and I have already separated it under the name of *E. johnstonei.*

CARDINALIS PHŒNICEUS ROBINSONI.

Cardinalis robinsoni Richmond, Auk, xii. p. 370 (1895: Margarita); Robinson, Proc. U.S. Nat. Mus. xviii. p. 676 (1895); Clark, Auk, xix. p. 265 (1902).

Cardinalis phœniceus, Bp. P. Z. S. 1837, p. 111.

a. ♂ ad. Jan. 6, 1904. [P. R. L.]
b–f. ♂ ad. }
g, h. ♂ ad. } March 20–23, 1906. [P. R. L.]
i–p. ♂ ad. Jan. 7, 1904. [R. B. S.]

Iris hazel-brown.

Mr. Richmond has separated the Margarita Cardinal from *C. phœniceus* as being a smaller bird and having the crest considerably shorter. I have carefully measured the crests of the series of birds obtained by us on Margarita, and I find that as compared with *C. phœniceus* some few Margarita crests are shorter, but that others are as long and some *longer*. The wings of my Margarita specimens are on an average decidedly larger than those of Mr. Robinson's birds from Margarita. The crest being a sexual adornment, it might be expected to vary a good deal according to the time of year.

Among the specimens of *C. phœniceus* in the British Museum which I examined is the type.

I am unable to appreciate any difference between the colour of the two forms. Our birds were in good breeding-plumage, whereas those taken by Capt. Robinson in July were, as Mr. Richmond says, worn.

Measurements of *Cardinalis phœniceus robinsoni* from Margarita Island.

	Wing.	Tail.	Exposed culmen.	Tarsus.
	in.	in.	in.	in.
(*a*) ♂ ad.	3·4	3·2	·75	·95
(*b*) „	3·35	3·15	·7	·9
(*c*) „	3·3	3·3	·75	·9
(*d*) „	3·3	3·2	·75	·95
(*e*) „	3·35	3·05	·85	·95
(*f*) „	3·4	3·35	·70	·90

TANAGRA MELANOPTERA.

Tanagra palmarum melanoptera Robinson, Proc. U.S. Nat. Mus. xviii. p. 677 (1895); Clark, Auk, xix. p. 266 (1902).

a, b, c. ♂ ad.
d. ♀ ad. } March 20, 21, 1906. [P. R. L.]

This bird does not differ from specimens in the British Museum from Trinidad and Venezuela.

TANAGRA GLAUCOCALPA.

Tanagra glaucocalpa (Cab.); Robinson, Proc. U.S. Nat. Mus. xviii. p. 678 (1895); Clark, Auk, xix. p. 266 (1902).

a, b. ♂ ad.
c. ♀ ad. } March 24, 1906. [P. R. L.]

Mr. Richmond thinks that Margaritan examples are slightly larger than those which he has examined from Colombia, and that they are brighter in colour generally.

The measurements of my birds seem to agree with this.

	Wing. in.	Tail. in.	Culmen. in.
♂ ad. ……	3·50	2·40	14
♂ ad. ……	3·45	2·45	14·5
♀ ad. ……	3·50	2·50	15

TACHYPHONUS MELALEUCUS.

Tachyphonus melaleucus (Sparrm.); Scl. Cat. B. Brit. Mus. xi. p. 206 (1886); Robinson, Proc. U.S. Nat. Mus. xviii. p. 677 (1895); Clark, Auk, xix. p. 266 (1902).

a, b. ♂ et ♀ ad. Jan. 7, 1904. [P. R. L.]

Met with in the tall forest-trees on the central chain of mountains at the east end of the island.

ICTERUS ICTERUS.

Icterus icterus Robinson, Proc. U.S. Nat. Mus. xviii. p. 674 (1895); Clark, Auk, xix. p. 264 (1902).

Icterus vulgaris Scl. Cat. B. Brit. Mus. xi. p. 382 (1886).

a–c. ad. Jan. 6, 1904. [R. B. S.]

d, e. ♂ ♀ ad. Jan. 6, 1904. [P. R. L.]

ICTERUS XANTHORNUS HELIOIDES.

Icterus xanthornus helioeides Clark, Auk, xix. p. 265 (1902).

Icterus xanthornus (Gm.); Robinson, Proc. U.S. Nat. Mus. xviii. p. 675 (1895); Richmond, t. c. p. 675.

a–e. ad. Jan. 6, 1904. [R. B. S.]

f–h. ♂ et 2 ♀. Jan. 6, 1904. [P. R. L.]

i, j. ♂ ad. } March 20–23, 1906. [P. R. L.]
k–m. ♀ ad. }

Iris dark hazel.

Mr. Clark (*l. c.*) says that this Oriole differs from the mainland form in being larger, with smaller feet and a thicker heavier bill, and that it has the culmen straighter than in continental examples. The measurements of my series of birds bear out this statement in even a more pronounced manner than Mr. Clark's, and are as follows:—

	Wing. mm.	Tail. mm.	Exposed culmen. mm.	Tarsus. mm.
♂ ……	103	104	22	24
♂ ……	105	92	23	25
♂ ……	105	93	22	26
♀ ……	100	92	22	24
♀ ……	97	87	23	25
♀ ……	97	87	22	25
♀ ……	95	82	23	24
Juv. ….	88	76	24	24·5

Some of the tails of my examples were very worn.

QUISCALUS INSULARIS.

Quiscalus insularis Richmond, Proc. U.S. Nat. Mus. xviii. p. 675 (1895); Clark, Auk, xix. p. 265 (1902).

a–d. ♂s et ♀. Jan. 6, 1904. [R. B. S.]

e. ♂ ad. March 21, 1906. [P. R. L.]

This is a larger bird than *Q. lugubris*.

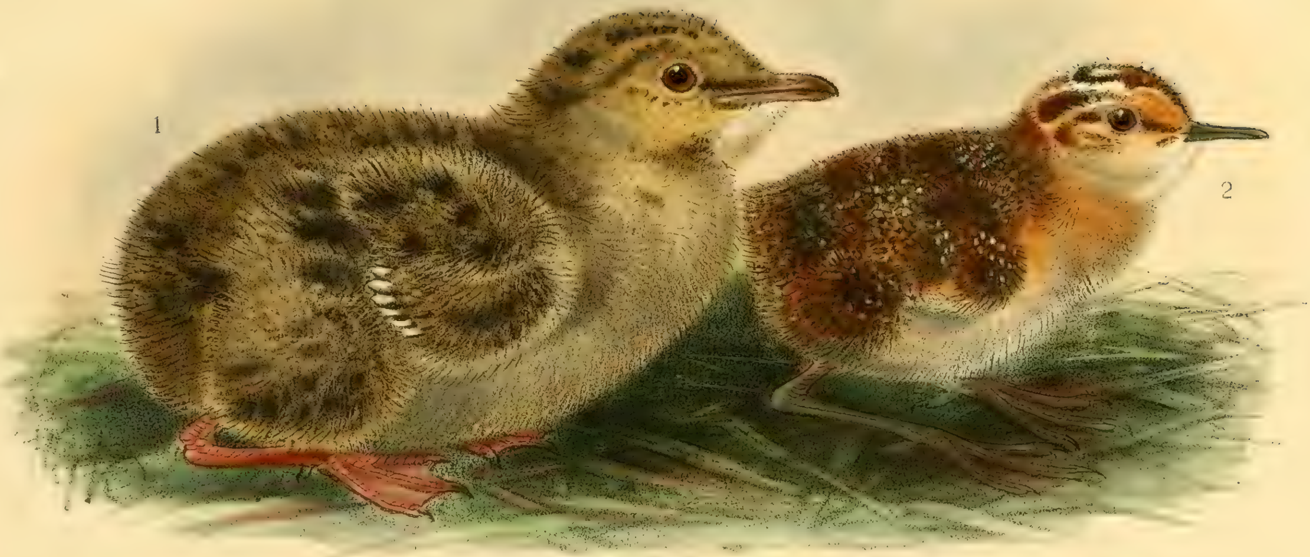
XXXI.—*On the Breeding-habits of the Rosy Gull and the Pectoral Sandpiper.* By S. A. BUTURLIN, F.M.B.O.U. (Communicated by H. E. DRESSER.)

(Plate XII.)

[MR. S. A. BUTURLIN has recently sent me specimens of the young in down of the Pectoral Sandpiper and the Rosy or Cuneate-tailed Gull in order that I might exhibit them, and, if possible, have them figured; they are, I believe, the first examples of these birds ever obtained in that stage of plumage. I therefore exhibited them on his behalf at the meeting of the British Ornithologists' Club on the 19th of June last (see Bull. B. O. C. xix. p. 109), and, owing to the courtesy of the Editors of 'The Ibis,' I am now able to give figures of both.

Mr. Buturlin, in his article on the "Breeding-grounds of the Rosy Gull" ('Ibis,' 1906, pp. 334–336), has given very

Ibis. 1907. Pl. XII.



West. Newman imp.

1. RHODOSTETHIA ROSEA, pull. 2. TRINGA MACULATA, pull.

full particulars respecting the nesting-habits and the young in down of *Rhodostethia rosea*, and it is therefore unnecessary to repeat them here; with regard to the Pectoral Sandpiper, however, he has sent me voluminous notes respecting the nesting-habits and young in down, from which I have extracted the following details.—H. E. D.]

THE Pectoral Sandpiper (*Tringa maculata*) was first noticed by me on the 29th of May, 1905, at the earliest appearance of the Arctic spring, as I was slowly making my way with tired and hungry dogs from the Great Baranoff Cape westward to the mouth of the Kolymá, on the sea-ice. It appeared in flocks of from twenty to forty individuals, flying swiftly in one continual line from the east, uttering a somewhat harsh call, "*twee, twee, twee,*" or "*teeleé, teeleé, teeleé,*" or, when alarmed, "*teer, leer, leer, lee.*"

During the last days of May and the first days of June it was very numerous near Pokhodskoe on the portions of the low islets where the old grass was already free from snow. Single birds were very hard to flush, and when they rose uttered a "*cheep, cheep, cheep,*" and a whistling note not unlike that of a Snipe; but the majority of the birds were in flocks of from ten to a dozen individuals, and though somewhat shy were by no means difficult to approach within gun-range, while, the cover being scanty, I could observe them well with my powerful binoculars. They would fly from one place to another in parties, and run swiftly, like so many mice, here and there in the old grass. One would every now and then stretch both wings right over its back, and afterwards commence a grotesque sort of dance, hopping alternately on each leg; another would inflate its gular pouch and run about, crouching down to the ground, or would fly up to about a hundred feet in the air, then inflate its pouch and descend slowly and obliquely to the ground on extended wings. All these performances were accompanied by a strange hollow sound, not very loud when near, but audible at some distance, even as far as five hundred yards. These notes are very difficult to locate, and vary according to the distance. When near they are tremulous booming sounds something like the notes of a frog, and end in clear sounds like those caused by the bursting of water-bubbles in a copper vessel. I tried on the spot to reproduce this sound as "*khrrrrrr-poo.*" At a distance it appears louder, resembling a harsh "*kokók, kokók, dooi, dooi, dooi, dooi,*" or a growling "*kwa-kwa-kwa-kwa,*" or, again, a hollow and tremulous "*kooroó-kooroó-kooroó-kooroó.*" At a greater distance the first harsh notes are inaudible, and only the final, clearer, notes are heard, resembling the syllables "*dooá-dooá-dooá-dooá,*" or simply "*doo-doo-doo-doo-doo,*" which reminded me of the sound made by a horse when stamping on the ground.

After the 4th of June the Pectoral Sandpipers disappeared from the neighbourhood of Pokhodskoe and scattered themselves over the open tundra, occupying the low flat parts of the western side of the valley as well as the higher eastern portion. In the first week of July I observed many in grassy places near the Gullery with various other Waders, but of these *Tringa maculata* was by far the most numerous. I did not, however, succeed in finding any of the nests, and evidently the birds had all hatched their eggs, as the young were about, accompanied only by the females. When approached the breeding-ground the old birds flew to meet me, one after another, and wheeled around uttering low tremulous notes of various kinds.

These calls were evidently meant for the young, and had different meanings. When the female is with them (and you must sit watching for an hour or more to observe this), the little ones are somewhat shy and take refuge under her. If you make the slightest movement she flies up, uttering the usual *kirip*, and kicks the young forwards, never backwards, until they tumble head over heels five or six inches away. There they lie as if dead, but with open eyes, and the mother flies around uttering a low tremulous "*kirip, kirip, trip, trrrrrr,*" evidently meaning "lie quite still." Then she alights near the young and runs about feigning lameness, while trying in every way to make you attempt to capture her. If, however, you keep quite quiet she becomes reassured, approaches near to where her young are, and utters with tender modulations "*day-day-day, day-day-day,*" which means evidently "all right, come here." Then the chicks commence to chirp "*peep, peep, peeyp,*" and run to their mother. On one occasion I observed all this at a distance of about ten paces, and once I was only about three paces from them. The downy young know their mother's call "*day-day-day*" so well that on one occasion a young bird, which I was taking home in my butterfly-net, when it heard a female call quite close to me, climbed out of the net to rejoin her.

The young in down have the legs and feet pale jasper-grey with a slight tinge of lilac, the joints being rather darker; the basal fourth of the bill is coloured like the legs, while the remaining three-fourths are lead-grey; the eyes are brown.

On the 19th, 23rd, and 25th of July I found many Pectoral Sandpipers in the wet grassy places on the high tundra near the eastern mouth of the Kolymá, and even then all the young were not fully fledged. Here, on the 22nd of July, I obtained the first young bird, which could fly heavily but had still down adhering to the plumage, and a second specimen on the 25th of July. In August the young birds were more numerous, and during the last week of that month, at the western mouth of the Kolymá, they were migrating up the river in flocks, sometimes in company with *Tringa acuminata*. Similar flocks were seen on the 9th of September on the great Nerpichie or Seal-lake on the western low tundra, but after that they were rarer, and the last that I saw near Pokhodskoe was on the evening of the 20th of September, when the ground was white with snow and my thermometer shewed 0°·3 C. during the day, falling to 4°·8 C. in the evening. The next day the rivulets were frozen.

EXPLANATION OF PLATE XII.

Fig. 1. Chick of the Rosy Gull (*Rhodostethia rosea*).
2. Chick of the Pectoral Sandpiper (*Tringa maculata*).

XXXII.—*On Tongue-marks in Young Birds.*

By Collingwood Ingram, M.B.O.U.

During several years of field-work in Europe and Japan I have paid particular attention to the nestlings of birds, noting, to the best of my ability, their peculiarities and family characteristics. It has always appeared to me that this branch of ornithology has been somewhat neglected by naturalists, although from time to time Mr. Pycraft has made some extremely interesting references to the subject.

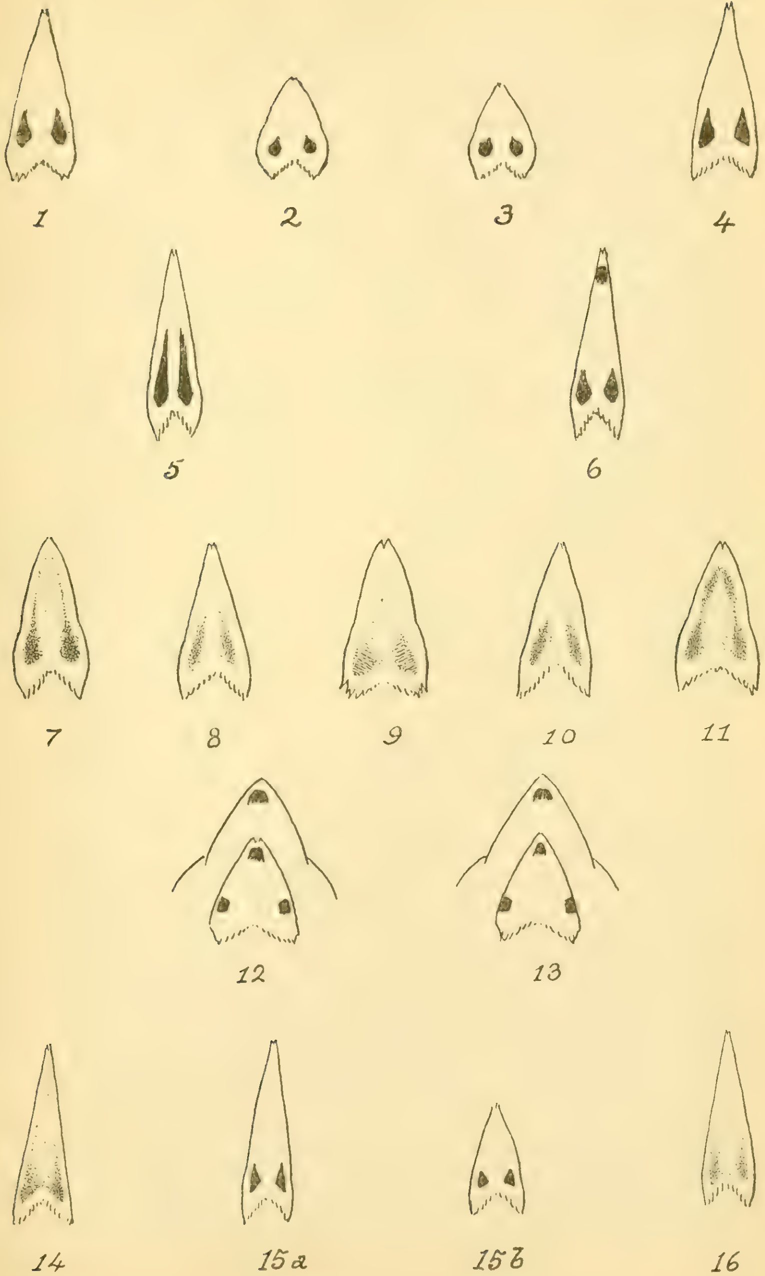
My study of the immature bird has shown me that the young of many Passerine species are temporarily endowed with very remarkable black marks or spots on the upper surface of their tongues.

In 1898, when describing the peculiar bead-like ornamentations at the angle of the bill of the young Gouldian Finch (*Poephila mirabilis*), Dr. Butler (Avicult. Mag. vol. v. p. 27) remarked that the palate of this species is "conspicuously marked (like a domino) with five more or less round black spots in pentagonal form," and that "the tongue is crossed just in front of its centre by a broad belt or by two large pear-shaped black spots." This paper was subsequently referred to by both Dr. Sharpe and Mr. Pycraft.

When these spots occur among Palæarctic birds they are usually only two in number, situated posteriorly one on each side of the tongue and close to its edge. These marks are of varying proportions, while the most usual patterns are, roughly speaking, lanceolate in shape, the two points being directed forward. Should a third be present it is to be found almost invariably on the tip of the tongue. Very rarely the inner extremities of both mandibles are ornamented in a similar way. Mr. Pycraft informs me that in *Panurus biarmicus* the markings are differently arranged and are *white* instead of black, an interesting discovery for which we are indebted in the first place to Miss E. L. Turner.

The use of these spots is not very evident, and, pending

Text-fig. 33.


1
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14
15a
15b
16

TONGUE-MARKS IN YOUNG BIRDS.

further knowledge, I will refrain from hazarding any opinion on the subject. The characters, however, appear to be pretty constant in members of the same genus, and it is not unreasonable to assume that they may ultimately prove of some small taxonomic value. With regard to the last-mentioned case, Mr. Pycraft is of the opinion that their object is to guide the parents when feeding their young in the partial obscurity of the nest. However true this may be of the *white* marks, it cannot, I think, explain the presence of the black spots in other species; moreover, those possessing the latter usually breed in open and fairly light situations. I have found that when diurnal birds nest in holes or dark places their young are almost always endowed with exceptionally big, wax-like enlargements at the gape of the mouth. These are doubtless there to guide the feeding parent, and other markings would therefore be unnecessary. Good examples of this may be seen in *Cinclus*, *Parus*, and *Troglodytes*.

Of course, in the adult bird the tongue is modified in accordance with the kind of food taken and the methods used in procuring it; consequently it may vary not a little in the different members of the same family—but usually only in minor details. This fact—coupled with the similarity that is often noticed in the tongues of birds widely separated but of similar habits—has led Mr. F. A. Lucas ('Auk,' 1896, pp. 109–115) to discredit the importance of this organ in classification. But the black tongue-marks are often so very characteristic and boldly defined that their presence and form may sometimes point to affinities where relationship has hitherto been obscure. Among European birds, so far as my observations go, this peculiarity is only observable in the young of some of the species possessing a thin and somewhat horny tongue, like the Reed-Warblers, and is seldom found in conirostral birds with fleshy tongues. It occurs in the genera *Hypolais*, *Acrocephalus*, *Locustella*, *Cisticola*, *Accentor*, *Panurus*, and *Alauda*, while it is found in various degrees of intensity in *Sylvia*. In *Motacilla* it is sometimes only faintly indicated and almost obsolete; but I suspect that it is also found in the young of *Lusciniola.* Besides those above-mentioned, however, I do not think it probable that it occurs in any other family inhabiting the Palæarctic Region, for during my research I have been able to amass much evidence of a negative kind, all of which points to this conclusion.

Although the colour of the tongue and the inside of the mouth ranges from purplish red in some of the Finches to bright yellow in the Willow-Warblers, I attach very little importance to this, as it is well-known that the colours of all the soft parts in birds are subject to many changes and variations.

In shape the tongue is very intimately related to the bill, hence it is small and broad in the newly-hatched bird, only getting its narrow form with the growth of the bill. A similar change takes place in the tongue-marks: these are at first short and thick, but they develop simultaneously with the tongue, and by the eighth or tenth day attain their characteristic shape. This is illustrated in text-fig. 33, fig. 15 *a*, which shews the tongue of a Hedge-Sparrow (*Accentor modularis*) about eleven days old, while fig. 15 *b* was taken from a bird of the same species not more than six days old. It is also shown in figs. 1, 2, and 4; for these represent tongues of closely-related *Acrocephali* taken at different ages. In these (as the genus *Hypolais*, fig. 3) the tongue-marks are what I may term of the simple type, being a pair of spots situated on the basal half of the tongue. In *Cisticola* (fig. 5) the black marks are greatly exaggerated, and *Locustella* (fig. 6) has a third on the end of the tongue. *Alauda* likewise has three marks; but in this case the bill is also ornamented, there being a spot on the inner side of the tips of both mandibles. With the true Warblers the marks are not always reliable, being often clouded and indistinct, varying considerably in different individuals. In figs. 7–11 (*S. cinerea, S. atricapilla, S. hortensis,* and *S. melanocephala*) I have given well-marked examples; in some individuals the dark marks may be scarcely perceptible. These remarks apply equally to *Motacilla raii* and *M. lugubris* (figs. 14 & 16). In all the others figured the tongue-spots are quite constant both in shape and distribution, being clearly defined and of a deep black colour.

EXPLANATION OF TEXT-FIGURE 33, p. 575.

Fig. 1. Tongue of *Acrocephalus phragmitis*: age about 8 days.
2. ,, *A. streperus*: age about 1 or 2 days.
3. ,, *Hypolais polyglotta*: age about 2 days.
4. ,, *Acrocephalus palustris*: age 5 or 6 days.
5. ,, *Cisticola cursitans*: age about 12 days.
6. ,, *Locustella nævia*: age about 11 days.
7. ,, *Sylvia cinerea*: age 5 days.
8. ,, *S. atricapilla*: age about 6 days.
9. ,, *S. hortensis*: age about 13 or 14 days.
10. ,, *S. orphea*: age about 6 days.
11. ,, *S. melanocephala*: age about 7 days.
12. ,, *Alauda arborea*: age about 2 days.
13. ,, *A. arvensis*: age about 6 days.
14. ,, *Motacilla raii*: age about 12 days.
15 *a*. ,, *Accentor modularis*: age about 11 days.
15 *b*. ,, *A. modularis*: age about 6 days.
16. ,, *Motacilla lugubris*: age about 11 days.

N.B.—The figures have been enlarged in order to shew the markings more clearly.

XXXIII.—*On the Birds procured by Mr. W. N. McMillan's Expedition to the Sobat and Baro Rivers.*

By W. R. Ogilvie-Grant.

This report is based on a large collection of birds made for Mr. W. N. McMillan during his expedition to the Sobat and Baro Rivers in the Anglo-Egyptian Sudan. A selection of these birds, which were collected by Mr. P. Zaphiro, was presented by Mr. McMillan to the British Museum. Though the collection contains examples of a large number of species, few of them are of any special interest, but nevertheless they are worthy of record, chiefly on account of the locality, whence but few specimens have been procured.

One small Waxbill (*Estrilda macmillani*) has been described as new from this collection.

To save repetition, the titles of the principal works quoted in this paper have been abbreviated as follows:—

Capt. Shelley's 'Birds of Africa' (1896–1906, incomplete) is referred to as "Shelley."

Dr. Reichenow's 'Die Vögel Afrikas' (1900–1905) is quoted as "Reich."

Messrs. Ogilvie-Grant and Reid's article ('Ibis,' 1901, pp. 607–699, pl. xiii.) is quoted as "Grant & Reid."

Mr. Ogilvie-Grant's paper "On a Collection of Birds made on the White Nile between Khartum and Fashoda" ('Ibis,' 1902, pp. 393–470, pls. x. & xi.) is quoted as "Grant."

Mr. Oscar Neumann's paper "Vögel von Schoa und Süd-Äthiopien," J. f. O. 1904–1906, is quoted as "Neumann."

Mr. Butler's article "Ornithology of the Egyptian Soudan" ('Ibis,' 1905, pp. 301–401) is quoted as "Butler."

Itinerary of the Expedition.

November 11th, 1903, to January 14th, 1904. Khartum, White Nile.
January 28th. Kawa, White Nile.
January 28th, 29th. Renk, White Nile.
January 31st. Fashoda.
February 1st. Moradar, White Nile.
February 3rd. Sobat River.
February 13th to 16th. Baro River.
March 2nd to 7th. Kaig, Baro River.
March 22nd to 5th April. Polkom, Baro River.
March 23rd & 27th. Ibaga, Baro River.
March 26th, 28th, & 29th and April 2nd to 7th. Lake Tinero, Baro River.
March 25th & 26th and April 4th & 7th. Elea, Baro River.

1. HETEROCORAX CAPENSIS.

Heterocorax capensis (Licht.); Grant, p. 399.

Heterocorax capensis minor (Heugl.); Reich. ii. p. 633 (1903); Neumann, 1905, p. 230.

Corvus capensis Butler, p. 326.

a, b. ♂. Fashoda, January 31st.

The above-mentioned examples belong to the smaller-billed form of the African Rook, the bill measuring 2·5 inches; in the larger *H. capensis* from Cape Colony it measures about 2·8. On examining the specimens of *Heterocorax* in the British Museum, we find that examples procured at Swellendam and Deelfontein in Cape Colony, as well as those from Zululand and Namaqualand, belong to the larger-billed form, and that specimens from Mashonaland, Damaraland, Angola, Lado, the White Nile, and Abyssinia belong to the smaller-billed *H. minor*, while those from the Transvaal appear to have the bill intermediate in size. We mention this point, as Dr. Reichenow, who recognises the two forms, limits the range of *H. minor* to North-east and East Africa, but our specimens shew that it really extends much further south. The fact is that though typical males of *H. capensis* from Cape Colony and of *H. minor* from Abyssinia seem very distinct when compared, a series of birds from intermediate districts of Africa shews that the two forms completely intergrade.

2. Corvus scapulatus.

Corvus scapulatus Daud.; Grant, p. 400; Reich. ii. p. 634 (1903); Neumann, 1905, p. 230; Butler, p. 326.

a–d. ♂ ♀. Fashoda, January 31st.

3. Lamprotornis porphyropterus.

Lamprotornis purpuropterus Rüpp.; Reich. ii. p. 710 (1903); Neumann, 1905, p. 243.

Lamprotornis porphyropterus Grant, p. 401; Butler, p. 324 (part.).

a, b. ♂ ♀. Kaig, March 4th & 5th.
c–g. ♂ ♀. Ibaga, March 27th.
h. ♂. Lake Tinero, March 26th.
i–m. ♂ ♀. Eleá, March 26th and April 4th.

4. Lamprotornis æneocephalus.

Lamprotornis æneocephalus Heugl.; Grant, pp. 401 & 402.

Lamprotornis porphyropterus Butler, p. 324 (part.).

a–d. ♂ ♀ et ♀ imm. Kawa, January 28th.

Although Mr. A. L. Butler was unable to recognise these two forms (*cf.* 'Ibis,' 1905, p. 324), the series of *L. æneocephalus* from the White Nile and of *L. porphyropterus* from the Baro River in the present collection entirely confirms my former remarks (*cf.* 'Ibis,' 1902, pp. 401–402) as regards the comparative size, length of tail, and geographical distribution of these two forms.

Mr. Butler writes:—"One of my Roseires skins (a male) has the central rectrices 7·8 inches long, *i. e.* well within the dimensions given for *L. æneocephalus.* But near El Obeid, in Kordofan, I saw some birds with tails so very much longer—undoubtedly the true *L. æneocephalus*—that I hesitate to ascribe my Blue or White Nile birds to the same form, and should call them *L. porphyropterus.*"

In reply to this statement, we can only point out the danger of conclusions based on specimens which have *merely been seen* at a distance. Mr. Butler's bird from Roseires is undoubtedly *L. æneocephalus,* and he has evidently never examined specimens of *L. porphyropterus.*

The bird from Kordofan with the tail of 11 inches is with little doubt referable to the West African *L. caudatus.*

The measurements of the tails of specimens in the present collection are as follows:—

L. porphyropterus.

	Males. in.	Females. in.
Kaig	5·6	4·85
Ibaga........	5·8	5·25
Lake Tinero .	5·7	
Elea	5·85	5·2
,, ...	6·0	

L. æneocephalus.

	Males. in.	Females. in.
Kawa	8·3	7·4
,, ...	8·0	

5. Dilophus caruncalatus.

Dilophus carunculatus (Gmel.); Grant, Ibis, 1900, p. 121.

Perissornis carunculatus, Reich. ii. p. 670 (1903); Neumann, 1905, p. 237.

a. ♂ imm. Kaig, March 6th.

6. Dicrurus afer.

Buchanga assimilis (Bechst.); Grant, p. 402.

Dicrurus afer (Licht.); Reich. ii. p. 646 (1903).

Dicrurus afer lugubris H. & E.; Neumann, 1905, p. 232.

a–g. ♂ ♀ et ♀ imm. Moradar, February 1st.

7. Oriolus galbula.

Oriolus galbula Linn.; Sharpe, Cat. Birds B. M. iii. p. 191 (1877); Butler, p. 323.

Oriolus oriolus (Linn.); Reich. ii. p. 654 (1903).

a. ♀. Elea, April 7th.

8. Pyromelana franciscana.

Pyromelana franciscana (Isert); Grant, p. 404; Reich. iii. p. 122 (1904); Shelley, iv. p. 90 (1905); Butler, p. 318.

Pyromelana franciscana franciscana Neumann, 1905, p. 345.

a–g. ♂. Khartum, 31st December, January 4th–14th.

9. Quelea æthiopica.

Quelea æthiopica (Sundev.); Grant, p. 404; Butler, p. 319; Shelley, iv. p. 114 (1905).

Quelea sanguinirostris æthiopica, Reich. iii. p. 109 (1904); Neumann, 1905, p. 343.

a. ♀. Moradar, February 1st.

According to Mr. J. A. Bucknill, the South African form of this species is almost certainly parasitic and deposits its eggs in nests of *Pyromelana oryx*. He believes that the eggs laid by these two species are indistinguishable. Mr. Ayres, of Potchefstroom, confirms these statements.

10. Steganura paradisea.

Steganura paradisea (Linn.); Grant, p. 403; Reich. iii. p. 223 (1904); Butler, p. 317.

Vidua paradisea Shelley, iv. p. 25 (1905).

a. ♂. Kawa, January 28th.

11. Vidua principalis.

Vidua principalis (Linn.); Grant & Reid, p. 613.

Vidua serena (Linn.); Reich. iii. p. 217 (1904); Butler, p. 317; Shelley, iv. p. 16 (1905); Neumann, 1905, p. 352.

a. ♀. Kawa, January 28th.

b. ♂. Moradar, February 1st.

12. Sporæginthus subflavus.

Sporæginthus subflavus (Vieill.); Grant, p. 405.

Estrilda subflava Reich. iii. p. 186 (1904); Shelley, iv. p. 207 (1905).

a. ♂. Moradar, February 1st.

The example of the Sanguineous Waxbill procured by Mr. Zaphiro, apparently an unusually fine bird, has the breast and belly scarlet and of a much more intense colour than in any of the specimens in the British Museum. In these latter the under parts are largely mixed with orange.

13. Sporæginthus ochrogaster.

Estrilda ochrogaster Salvad.; Reich. iii. p. 185 (1904); Shelley, iv. p. 217 (1905).

a. ♂ imm. Baro River, February 14th.

This bird is slightly smaller (wing 1·9 inches) than the specimens of *S. ochrogaster* in the British Museum; the ear-coverts are yellowish buff, the breast paler, and all trace of pink on the lower abdomen is wanting. No doubt the present specimen is a bird in the immature plumage.

The occurrence of this species on the Baro River extends its known range considerably to the south and west. It was first recorded from Tigré and subsequently from Lake Tsana (*Degen*) and Gelongol (*Lovat*).

14. Amadina fasciata.

Amadina fasciata (Gmel.); Grant & Reid, p. 617; Reich. iii. p. 146 (1904); Shelley, iv. p. 123 (1905); Butler, p. 319.

a. ♀. Kawa, January 28th.

15. Estrilda macmillani Grant.

Estrilda macmillani Grant, Bull. B. O. C. xix. p. 108 (1907).

a–c. ♂. Ibaga, March 27th. (*Types of the species.*)

The three male specimens in the present collection are somewhat paler above and a little smaller than typical specimens of *E. occidentalis* Fras. & Jard., from Fernando Po; they are also distinctly paler and smaller than examples of *E. occidentalis* from Sierra Leone. The differences, though slight, seem to warrant their separation. The following is a comparative list of measurements:—

E. macmillani, Grant.			*E. occidentalis* Fras. & Jard.					
Ibaga, Baro River.			Fernando Po.			Sierra Leone.		
	Wing.	Tail.		Wing.	Tail.		Wing.	Tail.
	in.	in.		in.	in.		in.	in.
♂.	1·77	1·6	♂.	1·85	1·8 (imperf.)	♂.	1·83	1·8
♂.	1·75	1·6	♂.	1·85	1·75 (imperf.)	♂.	1·82	1·8
♂.	1·75	1·6				♂.	1·85	1·87

Estrilda peasei Shelley appears to be a well-defined form, and is easily recognised from *E. occidentalis* Fraser by its much pinker breast and larger size, though Capt. Shelley [B. of Africa, iv. p. 200 (1905)] has subsequently united it to the West-African form.

16. Estrilda bengalus.

Estrilda phœnicotis Swains.; Grant, p. 406; Butler, p. 319.

Uræginthus bengalus (Linn.); Reich. iii. p. 207 (1904); Shelley, iv. p. 186 (1905).

Uræginthus bengalus perpallidus Neumann, 1905, p. 351.

a. ♀. Renk, January 29th.

b. ♂. Moradar, February 1st.

17. Sitagra luteola.

Sitagra luteola (Licht.); Grant, p. 406; Shelley, iv. p. 397 (1905).

Ploceus luteolus Reich. iii. p. 76 (1904); Neumann, 1905, p. 341.

a–c. ♂ ♀. Moradar, February 1st.

The male bird is in winter plumage.

18. Hyphantornis tæniopterus.

Hyphantornis tæniopterus (Reichenb.); Grant, p. 406; Shelley, iv. p. 411 (1905); Butler, p. 323.

Ploceus tæniopterus Reich. iii. p. 82 (1904); Neumann, 1905, p. 341.

a, b. ♂. Kaig, March 4th & 5th.

Both these birds are in winter plumage.

19. Passer rufidorsalis.

Passer domesticus rufidorsalis Brehm; Reich. iii. p. 235 (1904).

Passer domesticus Shelley, iii. p. 239 (1902); Butler, p. 315.

a–g. ♂ ♀. Khartum, Dec. 21st and January 2nd to 6th.

This form appears to be fairly distinct from typical *P. domesticus*, and a large series of specimens from the White Nile are quite alike as regards coloration. Captain Shelley has followed Dr. Sharpe in the 'Catalogue of Birds' and regards the present form as inseparable from *P. domesticus*, but I agree with Dr. Reichenow in thinking that it should be kept distinct.

20. Passer luteus.

Passer luteus (Licht.); Grant, p. 408; Shelley, iii. p. 258 (1902); Butler, p. 315.

Auripasser luteus Reich. iii. p. 248 (1904).

a. ♀. Khartum, January 8th.

b. ♂ imm. Kawa, January 28th.

21. Serinus leucopygius.

Serinus leucopygius (Sundev.); Grant, p. 408; Shelley, iii. p. 216 (1902); Butler, p. 316.

Poliospiza leucopygia Reich. iii. p. 255 (1904).

a. ♀. Kawa, January 28th.

b–e. ♂ ♀. Moradar, February 1st.

22. Calandrella brachydactyla.

Calandrella brachydactyla (Leisl.); Shelley, iii. p. 129 (1902); Reich. iii. p. 374 (1904); Butler, p. 308.

a–k. ♂. Khartum, December 31st to January 14th.

23. Galerida senegalensis.

Galerida cristata (Linn.); Grant, p. 410; Butler, p. 309.

Galerida senegalensis (P. L. S. Müll.); Shelley, iii. p. 108 (1902).

Galerida cristata senegallensis Reich. iii. p. 359 (1904).

a–c. ♂ ♀. Khartum, December 31st and January 2nd.

24. PYRRHULAUDA MELANOCEPHALA.

Pyrrhulauda melanocephala Licht.; Grant, p. 411; Shelley, iii. p. 90 (1902); Reich. iii. p. 367 (1904); Butler, p. 313.

a–e. ♂ ♀. Khartum, December 31st, January 8th & 14th.

In typical examples of *P. melanocephala* from Nubia and Senegambia, and of *P. leucotis* from Abyssinia, the differences are well marked; but in a large series of specimens of these two species procured on the Nile at Berber, Merowe, Shendi, &c. we find a somewhat intermediate stage. These birds, though most closely resembling *P. melanocephala,* also approach *P. leucotis* in certain respects, having a greater or less number of black feathers mingled with the lesser wing-coverts and forming a more or less marked patch of black on the shoulder. These black feathers are entirely absent in the true *P. melanocephala.* With one exception, which shews a trace of black feathers among the wing-coverts, all the birds from Khartum in the British Museum appear to be typical *P. melanocephala.*

The Museum possesses typical examples of *P. leucotis* from Upper Gallaland, Fashoda, the White Nile, and from Equatorial Africa.

No doubt all the birds procured by Mr. Butler at Khartum and Kawa belong to the present species, while those from Gedaref should be referred to *P. leucotis.*

25. MOTACILLA ALBA.

Motacilla alba Linn.; Reich. iii. p. 299 (1904); Butler, p. 304.

a–d. ♂. Khartum, December 30th to January 1st.

26. MOTACILLA FLAVA.

Motacilla flava Linn.; Grant, p. 411; Butler, p. 305.

Budytes flavus Reich. iii. p. 303 (1904); Neumann, 1906, p. 230.

a, b. ♂. Khartum, January 1st & 2nd.

c. ♂. Moradar, February 1st.

d, e. ♂. Baro River, February 16th.

These specimens are all immature birds attaining their first summer plumage. The bird from Khartum has a yellowish eyebrow-stripe, which is characteristic of *M. campestris*, but nevertheless it appears to be an immature specimen of *M. flava*. There is an adult example of the latter species in summer plumage in the British Museum, which has the eyebrow-stripe yellowish posteriorly.

27. ANTHUS CERVINUS.

Anthus cervinus (Pallas); Grant, p. 412; Reich. iii. p. 311 (1904); Butler, p. 306; Neumann, 1906, p. 230.

a, b. ♂. Khartum, January 1st & 8th.

28. ANTHUS CINNAMOMEUS.

Anthus rufulus (nec Vieill.); Shelley, ii. p. 319 (1900); Grant & Reid, p. 633.

Anthus rufulus cinnamomeus Rüpp.; Reich. iii. p. 313 (1904); Neumann, 1906, p. 231.

a–f. ♂ ♀. Baro River, February 13th to 16th.

g. ♀. Kaig, March 7th.

Dr. Reichenow separates African examples of this species from typical Indian specimens on account of their somewhat larger size. After measuring a number of specimens in the British Museum I think it best to accept the name *A. cinnamomeus* for the African bird.

He gives the following comparative measurements:—

	A. cinnamomeus.	*A. rufulus.*
Wing........	80–90 mm.	76–82 mm.
Tail	60–72 mm.	56–62 mm.

Specimens from the Baro River measure: wing 89–94, tail 68–75 mm.

29. NECTARINIA PULCHELLA.

Nectarinia pulchella (Linn.); Grant, p. 614; Reich. iii. p. 497 (1905); Butler, p. 303; Neumann, 1906, p. 256.

a. ♂ imm. Renk, January 28th.

b. ♀. Ibaga, March 27th.

c–f. ♂ ad. et ♂ imm. Elea, March 26th and April 4th to 6th.

g–k. ♂ ad. et imm. Polkom, March 23rd and April 5th.

l–n. ♂. Lake Tinero, March 28th and April 4th & 5th.

30. NECTARINIA METALLICA.

Nectarinia metallica, Licht.; Grant, p. 413; Butler, p. 302.

Hedydipna metallica Reich. iii. p. 493 (1905).

a. ♂. Khartum, January 11th.

31. PARUS LEUCOMELAS.

Parus leucomelas Rüpp.; Butler, p. 304.

Parus niger leucomelas Reich. iii. p. 511 (1905); Neumann, 1906, p. 260.

a. ♂. Polkom, March 24th.

b, c. ♂. Lake Tinero, March 28th.

The wings in these three specimens measure respectively: 78, 78, and 79 mm.

Mr. Neumann has described a somewhat larger form from the Omo River, &c., as *Parus niger lacuum.*

32. POMATORHYNCHUS HABESSINICUS.

Telephonus blanfordi (Sharpe); Grant & Reid, p. 637.

Pomatorhynchus senegalus habessinicus (Hempr. & Ehr.); Neumann, 1905, p. 220.

a. ♂. Polkom, March 23rd.

b, c. ♂. Elea, March 25th & 26th.

d, e. ♂. Lake Tinero, April 5th.

Mr. Neumann has pointed out that the name *P. habessinicus* should be used for the bird commonly known as *P. blanfordi* (Sharpe). Whether the present form is really distinct from *P. senegalus* appears to be extremely doubtful, as none of the characters by which it is said to be distinguished appear to be constant. On the other hand, the perfectly distinct form *P. percivali* (Grant) from Arabia has been added to the synonymy of the present species by Dr. Reichenow [*cf.* Vög. Afr. ii. p. 550 (1903)].

33. DRYOSCOPUS MALZACII.

Dryoscopus malzaci (Heugl.); Grant & Reid, p. 638.

Dryoscopus cinerascens Hartl.; Reich. ii. p. 596, iii. p. 834 (1903).

Dryoscopus malzakii erythreæ Neumann, 1905, p. 223.

a–c. ♂ ♀. Elea, March 25th and April 4th.

d–l. ♂ ♀ et ♂ imm. Lake Tinero, March 28th, April 5th & 6th.

34. Laniarius similis.

Laniarius sulphureipectus (Less.); Grant & Reid, p. 639.

Chlorophoneus sulfureopectus chrysogaster (Swains.); Reich. ii. p. 562 (1903).

Chlorophoneus sulfureopectus similis (Smith); Reich. ii. p. 563 (1903).

Chlorophoneus sulfureopectus suahelicus Neumann, 1905, p. 221.

a. ♀. Lake Tinero, 5th April.

Dr. Reichenow (*op. cit.*) recognises four subspecies of *L. sulphureipectus.* I have carefully examined the series in the British Museum, in which all but the Angola form (*L. modestus* Bocage) are well represented. Of this latter there is only one specimen. The typical form from West Africa with its wide yellow forehead and marked yellow eyebrow-stripe seems to be fairly separable from *L. chrysogaster* (Swains.), which is said to range from Senegambia to Abyssinia and thence southwards to Lake Nyasa. To this form the present specimen must be referred. I cannot, however, distinguish *L. chrysogaster* from the South-African *L. similis* Smith, adult birds from Abyssinia being indistinguishable from those from the Cape. Mr. Neumann's remarks on this subject are not borne out by the specimens before me.

35. Laniarius erythrogaster.

Laniarius erythrogaster Cretzschm.; Grant, p. 414; Reich. ii. p. 586 (1903); Butler, p. 329; Neumann, 1905, p. 223.

a. ♀. Kawa, January 28th.

b. ♀. Renk, January 29th.

c. ♂. Sobat River, February 3rd.

d–p. ♂ ♀. Kaig, March 2nd & 5th.

q, r. ♂ et ♀ imm. Polkom, March 22nd.

The females from Kawa and Renk are somewhat larger than the birds from the Sobat and Baro Rivers, the wings of the two former measuring respectively 4·1 and 4·2 inches, while in the latter they vary from 3·6 to 3·9. In other respects they do not appear to differ. One immature specimen in the British Museum from Goz-abu-Gumar, White Nile, has some of the feathers of the crown mixed with cinnamon, much as in the young of *L. barbarus*; this apparently indicates a reverting of the present black-headed species to a cinnamon-headed ancestral type. Two other immature birds from the Baro River have the crown quite black.

36. NILAUS AFER.

Nilaus afer (Lath.); Grant, p. 414; Reich. ii. p. 539 (1903); Butler, p. 329.

a. ♂. Renk, January 29th.
b. ♂. Polkom, March 22nd.

37. LANIUS ASSIMILIS.

Lanius assimilis Brehm; Grant, Nov. Zool. ix. p. 459, pl. xxvii. fig. 10 (1902); Reich. ii. p. 619 (1903).

a. ♂. Khartum, January 11th.

This example can only be referred to the present form; though apparently adult it differs from the majority of specimens in that the narrow black band at the base of the culmen is almost entirely wanting.

38. LANIUS EXCUBITORIUS.

Lanius excubitorius Des Murs; Grant, p. 415; id. Nov. Zool. ix. p. 469 (1902); Reich. p. 615 (1903).

Fiscus excubitorius Butler, p. 327.

Lanius excubitorius excubitorius Neumann, 1905, p. 227.

a. ♂. Moradar, February 1st.

39. LANIUS INTERCEDENS Neumann.

Lanius excubitorius intercedens Neumann, 1905, p. 228.

a–f. ♂ ♀. Lake Tinero, March 28th to April 7th.

Finding that the bird procured by M. Zaphiro on the White Nile differed slightly from others which he had collected on the Baro River, both in colour and in size, I have re-examined all the material available for comparison.

Dr. Reichenow recognises *L. excubitorius* and *L. boehmi* as distinct species. Mr. Neumann, on the other hand, regards the latter as a subspecies of *L. excubitorius* and separates the birds found from the Hawash Valley southwards to Lake Victoria under the name of *L. e. intercedens.* I quite agree in recognising *L. intercedens* as a fairly well-marked form, but Mr. Neumann also states that it is intermediate in *size* between *L. excubitorius* and *L. boehmi* and gives the following measurements:—

	L. e. excubitorius. mm.	*L. e. intercedens.* mm.	*L. e. boehmi.* mm.
Wing.........	105–116	116–124	124–130

But after measuring the dimensions of a large series I find that *L. intercedens* (with the wing 105–113 mm.) is the smallest form; *L. excubitorius* (with the wing 109–127 mm.) is intermediate; and *L. boehmi* (with the wing 125–127) is the largest of the three. It should also be noted that typical examples of *L. excubitorius* from Abyssinia are appreciably larger than those from the White Nile and from further south.

40. Lanius rufus.

Lanius paradoxus Brehm; Grant, p. 415; Butler, p. 328.

Lanius rufus (Gmel.); Grant, Nov. Zool. ix. p. 465 (1902).

Lanius senator Linn.; Reich. ii. p. 625 (1903).

a, b. ♂. Moradar, February 1st.

41. Lanius isabellinus.

Lanius isabellinus Hempr. & Ehr.; Grant, p. 415; id. Nov. Zool. ix. p. 482 (1902); Reich. ii. p. 624 (1903).

a. ♀. Renk, 29th January.

b–e. ♂. Lake Tinero, April 2nd & 4th.

42. Lanius nubicus.

Lanius nubicus Licht.; Grant, p. 416; id. Nov. Zool. ix. p. 464 (1902); Reich. ii. p. 612 (1903); Butler, p. 328.

a–d. ♂ ♀ ad. et imm. Renk, January 29th.

43. MELÆNORNIS PAMMELÆNA.

Sylvia pammelaina Stanley, in Salt's Abyssinia, App. p. 59 (1814); Neumann, 1905, p. 205.

a. ♂. Elea, April 6th.

This is a typical example of *M. pammelæna* and appears to be perfectly distinct from *M. schistacea* Sharpe, with which it has been united by Dr. Reichenow [*cf.* Vög. Afr. ii. p. 441 (1903)].

44. BRADYORNIS PALLIDUS.

Bradyornis pallidus (Müll.); Grant, p. 416; Reich. ii. p. 435 (1903); Butler, p. 340; Neumann, 1905, p. 204.

a. ♂. Moradar, February 1st.

This bird belongs to the smaller race of *B. pallidus* (*B. subalaris* Sharpe): wing 3·3 inches, tail 2·7.

45. BRADYORNIS, sp. inc.

a, b. ♂ ♀. Ibaga, March 27th.

Two birds from Ibaga, on the Baro River, appear to represent a form distinct from the typical *B. pallidus*; they are distinguished by their smaller size, darker earthy-brown upper parts, and more strongly coloured under parts, the chest, sides of the breast, and flanks being suffused with tawny-buff, while the basal part of the lower mandible is of a pale whitish horn-colour. The measurements are as follows:—

Male: wing 3·15 inches; tail 2·7.

Female: wing 3·0 inches; tail 2·65.

Without additional material I do not feel justified in adding another name to this already difficult genus.

46. PHYLLOSCOPUS RUFUS.

Phylloscopus rufus (Bechst.); Grant, p. 416; Butler, p. 335; Reich. iii. p. 643 (1905).

a. ♂. Khartum, January 4th.

47. SYLVIA CURRUCA.

Sylvia curruca (Linn.); Grant, p. 416; Butler, p. 336; Reich. iii. p. 654 (1905).

a, b. ♂. Khartum, January 11th & 12th.

48. HYPOLAIS PALLIDA.

Hypolais pallida (Hempr. & Ehr.); Grant, p. 417; Butler, p. 334.

Hippolais pallida Reich. iii. p. 646 (1905).

a–c. ♂ ♀. Khartum, January 10th & 11th.

d–f. ♂. Renk, January 29th.

49. SYLVIELLA BRACHYURA.

Sylviella brachyura Lafr.; Grant, Ibis, 1900, pp. 155, 156, & p. 417; Alexander, Ibis, 1902, p. 320; Butler, p. 331.

Sylvietta micrura Reich. (nec Rüpp.) iii. p. 627 (1905).

Sylvietta brachyura nilotica Neumann, 1906, p. 279.

a. ♂. Renk, January 29th.

b. ♂. Kaig, March 5th.

Dr. Reichenow (Vög. Afr. iii. pp. 627, 629) has altered the names of the two species which have been recognised by me (*cf.* 'Ibis,' 1900, pp. 154–157) as *S. micrura* Rüpp. and *S. brachyura* Lafr.; the former he calls *S. leucopsis* (Reich.), the latter *S. micrura* Rüpp. I have again gone closely into the question and am still convinced that the white eyebrowed white-throated bird, the *S. leucopsis* (Reich.), is also *S. micrura* Rüpp. Rüppell's figure and description of the bird clearly shew that the eyebrow-stripe and throat are *white*, and this appears to me to settle the question.

According to Dr. Reichenow, *S. brachyura* is confined to West Africa, but, as has already been pointed out, examples from the Gold Coast differ in no way from Abyssinian specimens, and Bonaparte states that Lafresnaye's type was procured in "Sennaar" and not in Senegambia.

Dr. Reichenow, who has examined Rüppell's types of *S. micrura* in Frankfurt, states that two forms are mixed up under that name, but, as already stated, Rüppell's description and figure leave no room for doubt as to which bird he referred to, though he was certainly wrong in giving Kordofan as the locality where the species was found. The rufous-eyebrowed and rufous-throated bird must therefore stand as *S. brachyura* Lafr. and not as *S. micrura*, *S. leucopsis* (Reich.) being a synonym of the latter.

50. PRINIA MURINA.

Prinia murina (Heugl.); Grant, p. 419; Butler, p. 332.

Prinia mystacea Rüpp.; Reich. iii. p. 590 (1905); Neumann, 1906, p. 276.

a. ♂. Renk, January 28th.

b. ♂. Moradar, February 1st.

c–e. ♂ ♀. Baro River, February 14th & 16th.

51. MELOCICHLA MENTALIS.

a–c. ♂ ♀. Kaig, March 4th & 6th.

The three specimens collected for Mr. McMillan on the Baro River have the feathers of the rump pale cinnamon-buff, in marked contrast to the upper tail-coverts, which are dark chestnut-brown. One specimen in the British Museum from Accra and three in the Jackson Collection from Mt. Elgon are perfectly similar in plumage to the birds from Kaig. On the other hand, the type specimen of *M. mentalis* and other examples from Accra, Fantee, &c., have the feathers of the rump reddish brown, much like the upper tail-coverts. I am at present unable to account for this rather marked difference in plumage, but as it is extremely unlikely that two distinct forms occur together in the same locality, I have merely called attention to these differences.

Dr. Reichenow [Vög. Afr. iii., pp. 538, 539 (1905)] distinguishes three subspecies of *M. mentalis*, viz.: the typical form from West Africa; *M. m. atricauda* from Equatorial Africa and Uganda; and *M. m. orientalis*, ranging from Lake Victoria to Lake Nyasa.

I have carefully re-examined the large series of these birds now available, including a number collected by the Ruwenzori Expedition. I find it impossible to recognise more than two forms, which should probably stand as follows:—

(1) MELOCICHLA MENTALIS.

Drymoica mentalis Fraser, P. Z. S. 1843, p. 16 (type in the British Museum).

Argya amauroura Pelz. Verh. zool.-bot. Ges. Wien, xxxii. p. 503 (1882).

Melocichla atricauda Reich. Orn. Monatsb. 1893, p. 61.

Melocichla mentalis Reich. iii. p. 538 (1905).

Melocichla mentalis atricauda Reich. l. c. p. 539.

Melocichla mentalis amauroura Neumann, 1906, p. 263.

The typical form, which ranges from West Africa to the White Nile and Uganda, has the upper parts much darker brown than *M. orientalis* and the rump usually reddish brown and much like the upper tail-coverts. As remarked above, the Kaig specimens, &c., with the pale cinnamon-buff rump are different, but, for reasons already given, are not separated.

(2) MELOCICHLA ORIENTALIS.

Cisticola orientalis Sharpe, Cat. Birds B. M. vii. p. 245 (1883) (type in the British Museum).

Melocichla mentalis orientalis Reich. iii. p. 538 (1905).

The eastern form, which ranges from the Pangani River to Lake Nyasa, has the upper parts of an altogether lighter brown than typical *M. mentalis*, and the feathers of the rump are lighter rufous-brown, while the bill is distinctly stouter and longer.

52. COSSYPHA VERTICALIS.

Cossypha verticalis Hartl.; Sharpe, P. Z. S. 1901, p. 613; Reich. iii. p. 761 (1905); Neumann, 1906, p. 282.

a. ♀. Kaig, March 4th.

b–d. ♂ ♀. Lake Tinero, March 28th, April 4th.

An example of this species was procured at Fort Berkeley, on the Upper White Nile, by Dr. Donaldson Smith.

53. TURDUS PELIOS.

Turdus pelios Bonap.; Grant, Ibis, 1904, p. 268; Reich. iii. p. 690 (1905); Butler, p. 337.

Turdus libonyanus pelios Neumann, 1906, p. 285.

a. ♂. Polkom, April 5th.

b, c. ♂ ♀. Elea, March 26th.

d–g. ♂ ♀. Lake Tinero, March 26th, April 2nd & 4th.

54. PRATINCOLA MAURA.

Pratincola maura (Pall.); Grant, Ibis, 1904, p. 269; Reich. iii. p. 734 (1905).

Pratincola rubicola (Linn.); Butler, p. 336.

Pratincola rubicola maura Neumann, 1906, p. 295.

a. ♂. Baro River, February 16th.

Rather more than the basal half of the four outer pairs of tail-feathers is white on the inner web; the basal third of the third to the fifth pairs is also white on the outer web. This specimen may be regarded as typical of *P. hemprichi*, which should perhaps be separated from *P. maura*.

55. SAXICOLA ŒNANTHE.

Saxicola œnanthe (Linn.); Grant, p. 421; Butler, p. 338; Reich. iii. p. 723 (1905).

a. ♀. Moradar, February 1st.

c–e. ♂. Baro River, February 13th & 15th.

f. ♂. Kaig, March 7th.

g. ♂. Polkom, March 24th.

h. ♂. Lake Tinero, March 28th.

56. SAXICOLA DESERTI.

Saxicola deserti (Temm.); Grant, p. 421; Butler, p. 339; Reich. iii. p. 726 (1905).

a–f. ♂ ♀. Khartum, December 21st, January 4th & 8th.

57. SAXICOLA HEUGLINI.

Saxicola heuglini Finsch & Hartl.; Grant, p. 421; Butler, p. 339; Reich. iii. p. 720 (1905).

a–i. ♂ ♀. Baro River, February 16th.

Nine additional examples of Heuglin's Chat from the Baro River bear out our previous remarks (*l. c.*) on this species.

58. CERCOTRICHAS PODOBE.

Cercotrichas podobe (Müll.); Grant, p. 422; Reich. iii. p. 763 (1905).

a. ♂. Khartum, January 11th.

59. Crateropus leucocephalus.

Crateropus leucocephalus (Cretzschm.); Grant, p. 422; Reich. iii. p. 666 (1905).

a. ♂. Kawa, January 28th.

60. Crateropus cinereus.

Crateropus plebeius cinereus Heugl.; Reich. iii. p. 658 (1905); Neumann, 1906, p. 263.

a–i. ♂ ♀. Lake Tinero, March 28th, April 4th & 5th.

This form is barely distinguishable from *C. plebeius*; it is perhaps a trifle smaller and has the lower back and rump more distinctly washed with grey.

61. Pycnonotus arsinoe.

Pycnonotus arsinoe (Hempr. & Ehr.); Grant, p. 423; Reich. iii. p. 420 (1905).

a, b. ♂ ♀. Kaig, March 4th & 11th.

62. Campophaga phœnicea.

Campophaga phœnicea (Lath.); Grant, Ibis, 1900, p. 172.

Campephaga phœnicea Reich. ii. p. 521 (1903); Neumann, 1905, p. 214.

a–d. ♂. Lake Tinero, March 29th to April 6th.

e, f. ♂ ♀. Elea, April 4th & 7th.

It is worthy of note that specimens of this species from Senafé, Tigré, and South Abyssinia differ from West-African examples and from those found on the Baro River in having the shoulder-spot of a more orange-red. The males from the Baro River appear to be rather small, the wing measuring from 3·6 to 3·8 inches; the female, on the contrary, is abnormally large with a wing measuring 4·05 inches.

63. Batis orientalis.

Batis orientalis (Heugl.); Grant, p. 423; Reich. ii. p. 481 (1903); Butler, p. 341.

Batis senegalensis orientalis Neumann, 1905, p. 209.

a. ♀. Moradar, February 1st.

b, c. ♂ ♀. Kaig, March 4th & 7th.

d. [♂]. Elea, March 25th.

e, f. ♂ ♀. Lake Tinero, March 26th to 28th.

64. TERPSIPHONE VIRIDIS.

Terpsiphone cristata (Gmel.); Grant, p. 423.

Tchitrea viridis Müll.; Reich. ii. p. 504 (1903).

Tchitrea viridis ferreti Guér.; Neumann, 1905, p. 211.

a–k. ♂ ♀ et imm. Kaig, March 2nd to 7th.

l, m. ♂ juv. et ♀. Polkom, March 22nd & 24th.

n–p. ♂ et imm. Lake Tinero, March 26th.

The series includes examples in various stages of plumage, some of the males being in the black-and-white garb of the fully adult bird and others in partially chestnut plumage.

65. EMPIDORNIS SEMIPARTITUS.

Empidornis semipartitus (Rüpp.); Reich. ii. p. 447 (1903).

a, b. ♂ ♀. Moradar, February 1st.

c–f. ♂ ♀. Lake Tinero, March 26th & 29th, April 2nd.

66. COTILE RIPARIA.

Cotyle riparia (Linn.); Grant, p. 424; Butler, p. 343.

Riparia riparia Reich. ii. p. 393 (1903).

a, b. ♂. Baro River, February 12th & 13th.

67. HIRUNDO ÆTHIOPICA.

Hirundo æthiopica Blanf.; Grant, p. 424; Reich. ii. p. 406 (1903); Butler, p. 341.

a–n. ♂ ♀. Khartum, January 6th to 12th.

68. HIRUNDO DOMICELLA.

Hirundo domicella Finsch & Hartl.; Sharpe, Monogr. Hirund. ii. p. 381, pl. 70 (1885); Reich. ii. p. 420 (1903).

a. ♀. Baro River, February 13th.

b. ♀. Elea, April 7th.

c, d. ♂ et ♀ imm. Lake Tinero, April 7th.

69. MESOPICUS PŒOCEPHALUS.

Mesopicus pœocephalus (Swains.); Grant, p. 425.

Mesopicos goertæ poicephalus Reich. ii. p. 186 (1902).

Mesopicos goertæ abessinicus Reich. ii. p. 187 (1902).

Mesopicos goertæ centralis Reich. ii. p. 187 (1902).

Mesopicos goertæ abyssinicus Neumann, 1904, p. 396.

a. ♀. Polkom, April 5th.

b–d. ♂ ♀. Kaig, March 4th.

70. CAMPOTHERA NUBICA.

Campothera nubica (Gmel.); Grant, p. 426; Butler, p. 358.

Dendromus nubicus Reich. ii. p. 178 (1902); Neumann, 1904, p. 394.

a, b. ♀. Lake Tinero, April 6th & 7th.

Specimen *a* is labelled as a male, but a mistake has obviously been made in ascertaining the sex.

71. DENDROPICUS SIMONI.

Dendropicus simoni Grant, Ibis, 1900, p. 304.

Dendropicos lafresnayi Reich. (nec Malh.) ii. p. 195 (1902) [part.].

Dendropicos guineensis lepidus Neumann (? nec Cab. & Heine), 1904, pp. 399–401.

a, b. ♂ ♀. Lake Tinero, April 6th & 7th.

The pair of birds collected for Mr. McMillan certainly belong to the form procured by Mr. Neumann and referred by him to *D. lepidus*. The latter is described by Cabanis & Heine as having a broad postocular stripe like *D. abyssinicus*, a point which was commented on by Hargitt [*cf.* Cat. B. Brit. Mus. xviii. p. 302 (1890)], but our birds shew no trace of any such marking. On the other hand, they are undoubtedly the same as *D. simoni* Grant, the type of which was procured by Lord Lovat at Konduro, South Abyssinia. This species has been doubtfully referred by Mr. Neumann to the synonymy of *D. lepidus*, but *D. simoni* shews no trace of the wide postocular stripe said to be characteristic of the former.

72. LYBIUS ABYSSINICUS.

Melanobucco abyssinicus (Lath.); Grant, Ibis, 1904, p. 273.

Lybius tridactylus (Gmel.); Reich. ii. p. 124 (1902); Neumann, 1904, p. 386.

a. ♂. Sobat River, February 3rd.

b–i. ♂ ♀. Kaig, March 2nd & 7th.

k–n. ♂ ♀. Polkom, March 22nd and April 5th.

o, p. ♂. Elea, April 4th & 6th.

q–s. ♂ ♀. Lake Tinero, April 5th.

The specimens in the present collection appear to be slightly smaller than more northern birds; the wing in eleven examples varies from 3·25 to 3·35 inches.

73. LYBIUS VIEILLOTI.

Melanobucco vieilloti Leach; Grant, p. 426; Butler, p. 358.

Lybius vieilloti Reich. ii. p. 127 (1902) [part.].

a, b. ♂ ♀. Renk, January 29th.

74. LYBIUS ÆQUATORIALIS.

Melanobucco æquatorialis Shelley; Grant, Ibis, 1904, p. 273.

Lybius æquatorialis Reich. ii. p. 119 (1902).

Lybius bidentatus æquatorialis Neumann, 1904, p. 385.

a. ♂. Polkom, April 5th.

b–d. ♂ ♀. Elea, April 6th.

e–i. ♂ ♀. Lake Tinero, March 29th, April 5th & 6th.

75. CENTROPUS MONACHUS.

Centropus monachus (Rüpp.); Grant, p. 428; Reich. ii. p. 62 (1902); Neumann, 1904, p. 379; Butler, p. 356.

a. ♀. Renk, January 29th.

b–e. ♂ ♀. Kaig, March 2nd & 7th.

f–h. ♀. Polkom, March 22nd to 24th.

76. COLIUS LEUCOTIS.

Colius leucotis (Rüpp.); Reich. ii. p. 204 (1902); Butler, p. 356; Grant, Ibis, 1904, p. 274; Sclater, Gen. Av. pt. 6, *Coliidæ*, p. 5 (1906).

Colius striatus leucotis Neumann, 1904, pp. 403–405.

a–c. ♂ ♀. Kaig, March 4th to 7th.

d, e. ♂ ♀. Polkom, March 23rd.

77. COLIUS MACRURUS.

Colius macrurus (Linn.); Grant, p. 428; Butler, p. 356; Sclater, Gen. Av. pt. 6, *Coliidæ*, p. 4 (1906).

Colius macrourus Reich. ii. p. 210 (1902).

a. ♂. Khartum, January 6th.

b, c. ♂ ♀. Kaig, March 4th & 5th.

78. Tachornis parva.

Tachornis parva (Licht.); Grant, p. 429; Reich. ii. p. 383 (1902); Butler, p. 344.

a. ♂. Khartum, January 10th.

79. Caprimulgus natalensis.

Caprimulgus natalensis Smith; Reich. ii. p. 367 (1902); Sharpe, Ibis, 1902, p. 622; Grant, Ibis, 1905, p. 203.

a. ♀. Baro River, February 15th.

This specimen, rather a brightly-coloured bird, closely resembles a male example from Natal in the British Museum, but all the black markings, especially those on the head and back, are more pronounced, more so than in any other specimen of *C. natalensis* that I have examined. The occurrence of the Natal Nightjar on the Baro River extends its known range a long way to the north. Doggett procured a specimen at Burumba, South Uganda, and there are three examples in the Jackson Collection procured near Entebbe.

80. Macrodipteryx macrodipterus.

Macrodipteryx macrodipterus (Afzel); Grant, p. 430; Reich. ii. p. 370 (1902); Butler, p. 345; Neumann, 1905, p. 199.

a–e. ♂ et ♂ imm. Polkom, March 23rd & 24th.

f, g. ♂. Lake Tinero, April 7th.

Four of the males of the Standard-winged Nightjar have their ninth primary quill fully developed; two others are young in female-like plumage, but with the plumage of the back blacker and the wing somewhat longer than in the female.

81. Scotornis climacurus.

Scotornis climacurus (Vieill.); Grant, p. 429; Reich. ii. p. 368 (1902); Butler, p. 347; Neumann, 1905, p. 199.

a. ♀. Renk, January 29th.

b–i. ♂ ♀. Sobat River, February 3rd.

k–o. Kaig, March 2nd to 4th.

The above-mentioned specimens vary much in the ground-colour of the upper parts, some being of a dark slate-grey, others sandy brown. All but one of the birds from the

Sobat belong to the dark type; the remaining bird from the Sobat, together with those from Renk and the Baro River, vary from the pale to the intermediate stages.

82. LOPHOCEROS NASUTUS.

Lophoceros nasutus (Linn.); Grant & Reid, p. 675; Reich. ii. p. 257 (1902); Butler, p. 354; Neumann, 1905, p. 188.

a–c. ♂. Polkom, March 22nd to 24th.
d–f. ♂. Elea, April 6th.

83. UPUPA EPOPS.

Upupa epops Linn.; Grant, p. 432; Reich. ii. p. 333 (1902); Butler, p. 352.

a. ♂. Khartum, January 10th.

84. IRRISOR ERYTHRORHYNCHUS.

Irrisor erythrorhynchus (Lath.); Grant, p. 433; id. Ibis, 1905, p. 209; Butler, p. 352.

Irrisor erythrorhynchos Reich. ii. p. 338 (1902) [part.].

Irrisor erythrorhynchos guineensis Reich. ii. p. 340.

Irrisor erythrorhychos niloticus Neumann, 1905, p. 194.

a–f. ♂ ♀ et imm. Polkom, March 23rd & 24th.
g, h. ♀ ad. et imm. Elea, April 6th & 7th.

85. SCOPTELUS NOTATUS.

Scoptelus notatus Salvin; Grant, p. 435; Butler, p. 353.

Scoptelus aterrimus Steph.; Reich. ii. p. 344 (1902) [part.].

Scoptelus aterrimus notatus Neumann, 1905, p. 196.

Scoptelus aterrimus emini and *S. a. major* Neumann, 1905, p. 197.

a. ♀ imm. Kawa, January 28th.
b. ♂. Polkom, March 24th.
c–e. ♂ ♀. Elea, April 4th & 6th.
f, g. ♂ ♀. Lake Tinero, April 5th.

As stated in my paper quoted above, the male specimen of *Scoptelus* procured by Mr. R. M. Hawker, twenty miles north of Fashoda, has the primaries entirely metallic steel-blue, without any trace of a smoky-grey subterminal patch. This is apparently characteristic of the very old male of *S. notatus* Salvin. Two males of typical *S. aterrimus* in Mr. Boyd Alexander's Collection have these patches on the primaries nearly obsolete. This specimen shews no traces of the white spots or bands on the outer pair of tail-feathers, while in five female examples, also from the White Nile, the white markings are more or less developed and vary from a well-marked band crossing both webs to an almost invisible spot on the outer web of the outer tail-feather. Of six birds collected for Mr. McMillan on the Baro River only one male and one female shew any traces of white on the outer tail-feathers, which have a small white spot on the outer web. In the six typical Abyssinian birds in the British Museum the white band or spot is well-marked, but this character is clearly very variable and of slight importance, and I am not sure that Dr. Reichenow was not fully justified in uniting *S. notatus* with *S. aterrimus*.

Mr. Neumann has recognised no less than five forms or subspecies of *S. aterrimus*, but after a very careful examination of the series I cannot see the slightest justification for adopting such a course.

I add the wing-measurements of the specimens examined, from which it is clear that Mr. Neumann's *S. aterrimus major*, which is said to be distinguished from *S. notatus* by its size (wing 113 mm.=4·5 in.), is not much larger than many other male specimens.

Typical *S. notatus*.

	Wing. in.		Wing. in.
♂. Shoa, Abyssinia	4·2	♀. Ailat	3·9
♂. Rairo	4·2	♀. Anseba Valley	3·85
♂. Senafé	4·2		
♂. Mohaber	4·1		
♂. Polkom, Baro River	3·9	♀. Elea	3·6
♂. Elea	4·2	♀. Lake Tinero	3·85
♂. ,,	4·0		
♂. Lake Tinero	4·05		
♂. Twenty miles N. of Fashoda, White Nile.	4·1	♀. Kordofan	4·0
		♀. Fashoda	3·8
		♀. Kawa	3·95
		♀. Zeraf River	3·8

S. aterrimus.

	Wing. in.		Wing. in.
♂. Senegambia	4·0	♀. St. Louis, Senegambia	3·8
♂. St. Louis	3·9	♀. „ „	3·7

In Mr. Boyd Alexander's Collection.

♂?. 7th July, 1906	4·25	♀. R. C. Mission, 8th November, 1905	3·85
[♂.] R. Guruba, 25th May, 1906	4·15		

86. Melittophagus pusillus.

Melittophagus pusillus P. L. S. Müller; Grant, p. 430; Reich. ii. p. 305 (1902); Butler, p. 349.

Melittophagus pusillus ocularis Reich. ii. p. 306 (1902); Neumann, 1905, p. 191.

a–i. ♂ ♀. Khartum, January 5th to 12th.
k. ♂. Moradar, February 1st.
l–q. ♂ ♀. Baro River, February 13th & 16th.
r–t. ♂ ♀. Kaig, March 6th & 7th.
u–w. ♂ ♀. Lake Tinero, March 28th.
x. ♂. Polkom, April 5th.

Dr. Reichenow distinguishes the eastern form of this species under the subspecific name *ocularis*, on account of the pale blue eyebrow-stripe arising above the posterior part of the eye. This slight character, though less frequent and less marked in West-African birds, is often present, and it does not appear to me that there is sufficient difference to warrant even subspecific distinction.

87. Melittophagus frenatus.

Melittophagus bullocki Grant (nec Vieill.), Ibis, 1900, p. 313.

Melittophagus frenatus (Hartl.); Reich. ii. p. 310 (1902); Butler, p. 349.

Melittophagus bullocki frenatus Neumann, 1905, p. 191.

a–g. ♂ ♀. Elea, March 25th and April 4th.
h. ♂. Lake Tinero, April 6th.

All the specimens from the Baro River have the pale verditer-blue feathers over the lores and bordering the black cheeks and ear-coverts fairly well-marked. The specimens collected by Lord Lovat on the Blue Nile and by Emin at Langomeri are similar and should also be referred to this form, if it is kept separate from *M. bullocki*; but the fact is that certain West-African specimens, such as an example in the British Museum procured by Moloney on the Gambia, have the cheeks and ear-coverts bordered below with bluish-green and cannot be separated from *M. frenatus.*

88. Merops viridis.

Merops viridis Linn.; Grant, p. 430; Butler, p. 351.

Merops viridissimus Swains.; Reich. ii. p. 326 (1902).

a–e. ♂ ♀. Khartum, January 7th & 11th.
f. ♂. Renk, January 21st.
g. ♂. Moradar, February 1st.
h. ♂. Polkom, April 5th.
i–n. ♂ ♀. Elea, April 4th & 7th.
o. ♂. Lake Tinero, April 6th.

The colour of the throat in the above-mentioned specimens varies from green and yellowish green to yellow.

89. Merops albicollis.

Merops albicollis Vieill.; Grant, p. 431; Butler, p. 851.

Aerops albicollis Reich. ii. p. 317 (1902); Neumann, 1905, p. 193.

a–c. ♀. Kaig, March 3rd & 4th.
d. ♀. Lake Tinero, March 27th.

90. Merops nubicus.

Merops nubicus Grant, p. 431; Reich. ii. p. 329 (1902); Butler, p. 352; Neumann, 1905, p. 193.

a, b. ♂ ♀. Renk, January 29th.
c–o. ♂ ♀. Elea, March 26th and April 7th.
p–s. ♂ ♀. Lake Tinero, 6th April.

91. Dicrocercus furcatus.

Dicrocercus furcatus (Stanl.); Sharpe, Cat. Birds B. M. xvii. p. 42 (1892); Reich. ii. p. 316 (1902).

Dicrocercus hirundineus furcatus Neumann, 1905, p. 192

a–c. ♂ ♀. Polkom, March 23rd and April 5th.

d–g. ♂ ♀. Elea, April 4th & 7th.

h, i. Lake Tinero, March 29th & April 5th.

92. CORACIAS ABYSSINICUS.

Coracias abyssinicus Bodd.; Grant, p. 437; Butler, p. 349.

Coracias abyssinus Reich. ii. p. 219 (1902).

a. ♂. Khartum, January 10th.

b, c. ♂. Polkom, March 22nd & 24th.

d–h. ♀. Lake Tinero, March 23rd & 28th, April 5th & 7th.

Some of the specimens from the Baro River have the hinder part of the crown and occiput more or less tinged with purplish, but others from the same locality agree with typical examples of *C. abyssinicus.*

93. CERYLE MAXIMA.

Ceryle maxima (Pall.); Grant & Reid, p. 677; Reich. ii. p. 298 (1902); Butler, p. 354; Neumann, 1905, p. 190.

a. ♀. [Khartum], January.

94. CERYLE RUDIS.

Ceryle rudis Grant, p. 435; Reich. ii. p. 295 (1902); Butler, p. 354; Neumann, 1905, p. 190.

a–e. ♀ et ♀ imm. Khartum, January 2nd to 8th.

f, g. ♂. Moradar, February 1st.

h. ♂. Baro River, February 16th.

i–m. ♂ ♀ et ♂ imm. Elea, March 25th.

95. CORYTHORNIS CYANOSTIGMA.

Corythornis cyanostigma (Rüpp.); Grant, p. 436; Reich. ii. p. 289 (1902); Butler, p. 354.

a, b. ♂. Kaig, February 4th and March 5th.

96. HALCYON SEMICÆRULEUS.

Halcyon semicæruleus (Forskål); Grant, p. 436; Reich. ii. p. 276 (1902); Butler, p. 355.

Halcyon semicæruleus semicæruleus Neumann, 1905, p. 189.

a, b. ♀. Kaig, March 4th & 6th.

c–f. ♂ ♀. Elea, March 25th.

97. HALCYON SENEGALENSIS.

Halcyon senegalensis (Linn.); Grant & Reid, p. 677; Reich. ii. p. 282 (1902).

a. ♂. Kaig, March 3rd.

b. ♂. Polkom, March 24th.

c. ♂ vix adult. Elea, March 25th.

98. HALCYON CHELICUTI.

Halcyon chelicutensis (Stanl.); Grant, p. 436; Butler, p. 356.

Halcyon chelicuti Reich. ii. p. 271 (1902); Neumann, 1905, p. 188.

a. ♀. Polkom, March 24th.

b–f. ♂ ♀. Elea, March 25th.

99. BUBO CINERASCENS.

Bubo cinerascens (Guérin); Grant, p. 438; Butler, p. 362.

Bubo maculosus cinerascens Reich. i. p. 656 (1901); Neumann, 1904, p. 373.

a. ♀. Kaig, March 6th.

b. ♀ imm. Polkom, March 23rd.

c. ♂ imm. Ibaga, March 27th.

d. ♂. Lake Tinero, April 7th.

These birds shew the grey phase of plumage. The immature specimens are rather more rufous than the adults.

100. GLAUCIDIUM PERLATUM.

Glaucidium perlatum (Vieill.); Grant & Reid, p. 680; Reich. i. p. 674 (1901); Butler, p. 361; Neumann, 1904, p. 375.

a. ♀. Lake Tinero, March 26th.

101. STRIX FLAMMEA.

Strix flammea Linn.; Grant, p. 439; Butler, p. 360.

Strix flammea maculata Brehm; Reich. i. p. 676 (1901).

a. ♀. Elea, April 6th.

102. CIRCUS MACRURUS.

Circus macrourus (Gmel.); Reich. i. p. 535 (1901); Neumann, 1904, p. 359.

Circus macrurus Grant & Reid, p. 681; Butler, p. 370.

a. ♂. Khartum, January 3rd.

103. MELIERAX POLYZONUS.

Melierax polyzonus (Rüpp.); Grant, p. 440; Butler, p. 368.

Melierax metabates Heugl.; Reich. i. p. 544 (1901); Neumann, 1904, p. 360.

a–c. ♂ ♀ et ♂ imm. Polkom, March 23rd and 24th.

d. ♀. Elea, April 6th.

104. MELIERAX GABAR.

Melierax gabar (Daud.); Grant, p. 441; Butler, p. 369.

Micronisus gabar Reich. i. p. 565 (1901).

a, b. ♀ ad. et imm. Khartum, January 3rd & 8th.

105. ASTUR SPHENURUS.

Astur sphenurus (Rüpp.); Sharpe, Cat. Birds B. M. i. p. 112 (1874); Reich. i. p. 557 (1901); Neumann, 1904, p. 360.

a. ♂. Lake Tinero, April 5th.

106. BUTEO AUGURALIS.

Buteo auguralis Salvad.; Reich. i. p. 593 (1901); Neumann, 1904, p. 364.

a–c. ♂ ♀. Kaig, March 4th & 6th.

Two of the above-mentioned specimens were presented to the British Museum by Mr. McMillan, and are a valuable accession to the collection, which previously contained only one West-African example, from the Gold Coast, received as part of the Shelley Collection. The chestnut-brown sides of the head and neck seem to be the most distinctive character of the species.

107. ASTURINULA MONOGRAMMICA.

Asturinula monogrammica (Temm.); Sharpe, Cat. Birds B. M. i. p. 275 (1874).

Kaupifalco monogrammicus Reich. i. p. 547 (1901).

a. ♂. Elea, April 4th.

108. BUTASTUR RUFIPENNIS.

Butastur rufipennis (Sund.); Reich. i. p. 597 (1901); Grant, p. 442; Butler, p. 368.

a. ♀. Kaig, March 7th.

"Iris yellow; bill yellow and black."

109. Haliaëtus vocifer (Daud.); Reich. i. p. 605 (1901); Grant, p. 443; Butler, p. 366; Neumann, 1904, p. 368.

a, b. ♂ ♀. Sobat, February 3rd.

110. Falco barbarus.

Falco barbarus (Linn.); Sharpe, Cat. Birds B. M. i. p. 386 (1874); Reich. i. p. 627 (1901); Butler, p. 362.

a. ♀ imm. Khartum, January 3rd.

The specimen has the upper parts moulting into the slate-coloured plumage of the adult.

111. Cerchneis tinnunculus.

Cerchneis tinnunculus (Linn.); Reich. i. p. 641 (1901); Grant, p. 444; Neumann, 1904, p. 372.

Tinnunculus alaudarius (Gmel.); Butler, p. 365.

a–d. Khartum, January 6th to 8th.

112. Dendrocycna viduata.

Dendrocycna viduata Linn.; Grant, p. 445; Butler, p. 383.

Dendrocygna viduata Reich. i. p. 124 (1900); Neumann, 1904, p. 328.

♂ ♀. Kawa, January 28th.

113. Dafila acuta.

Anas acuta Linn.; Reich. i. p. 117 (1900).

Dafila acuta Grant, p. 445; Butler, p. 384.

a, b. ♀. Khartum, December 31st.

114. Ibis æthiopica.

Ibis æthiopica (Lath.); Reich. i. p. 321 (1901); Grant, p. 449; Butler, p. 371; Neumann, 1904, p. 327.

a. ♀ imm. Sobat, February 3rd.

115. Scopus umbretta.

Scopus umbretta (Gmel.); Reich. i. p. 353 (1901); Grant, p. 446; Neumann, 1904, p. 339; Butler, p. 377.

a, b. ♂. Polkom, March 24th & 25th.

c. ♀. Elea, March 26th.

116. ABDIMIA ABDIMII.

Abdimia abdimii (Licht.); Reich. i. p. 343 (1901); Grant, p. 446; Neumann, 1904, p. 338.

Ciconia abdimii, Butler, p. 378.

a–e. ♂ ♀. Lake Tinero, March 28th and April 2nd.

117. ANASTOMUS LAMELLIGERUS.

Anastomus lamelligerus Temm.; Reich. i. p. 335 (1901); Grant, p. 447; Neumann, 1904, p. 338; Butler, p. 381.

a. ♂. Sobat River, February 3rd.

b–e. ♂ ♀. Baro River, February 19th.

118. ARDEA GOLIATH.

Ardea goliath Cretzschm.; Reich. i. p. 376 (1901); Grant, p. 450; Neumann, 1904, p. 339; Butler, p. 372.

a. ♀. Baro River, February 18th.

119. ARDEA CINEREA.

Ardea cinerea Linn.; Reich. i. p. 379 (1901); Grant, p. 450; Butler, p. 372.

a. ♂. Khartum, January 3rd.

b. ♂ imm. Baro River, February 18th.

120. MESOPHOYX BRACHYRHYNCHA.

Mesophoyx brachyrhyncha (Brehm); Grant, p. 451.

Herodias brachyrhyncha Reich. i. p. 389 (1901); Butler, p. 372.

a. ♀. Elea, March 25th.

121. GARZETTA GARZETTA.

Garzetta garzetta (Linn.); Sharpe, Cat. Birds B. M. xxvi. p. 118 (1898).

Herodias garzetta Reich. i. p. 387 (1901).

a, b. ♂ ♀. Khartum, January 1st & 4th.

122. BUBULCUS LUCIDUS.

Bubulcus ibis (Linn.); Reich. i. p. 381 (1901); Neumann, 1904, p. 340.

Bubulcus lucidus (Rafinesque); Grant, p. 452.

Herodias bubulcus (Aud.); Butler, p. 372.

a–c. ♂ ♀. Elea, March 25th.

d. ♂. Lake Tinero, April 4th.

123. Nycticorax nycticorax.

Nycticorax nycticorax (Linn.); Reich. i. p. 362 (1901); Grant, p. 451.

Nycticorax griseus (Linn.); Butler, p. 373.

a. ♀. Sobat River, February 3rd.

124. Œdicnemus senegalensis.

Œdicnemus senegalensis Swains.; Reich. i. p. 197 (1900); Grant, p. 457; Neumann, 1904, p. 331; Butler, p. 398.

a. ♂. Elea, March 25th.
b. ♂. Lake Tinero, March 28th.

125. Pluvianus ægyptius.

Pluvianus ægyptius (Linn.); Reich. i. p. 150 (1900); Grant, p. 457; Neumann, 1904, p. 329; Butler, p. 399.

a, b. ♂ ♀. Baro River, February 14th & 16th.
c. ♀. Kaig, March 4th.
d. ♀. Elea, March 25th.
e, f. ♂ ♀. Lake Tinero, March 28th and April 2nd.

126. Glareola pratincola.

Glareola fusca (Linn.); Reich. i. p. 144 (1900).

Glareola pratincola (Linn.); Grant, p. 458; Butler, p. 400.

a. ♀. Baro River, February 16th.

127. Phyllopezus africanus.

Actophilus africanus (Gmel.); Reich. i. p. 267 (1900); Neumann, 1904, p. 334.

Phyllopezus africanus Grant, p. 458; Butler, p. 394.

a, b. ♂ et ♂ imm. Polkom, March 21st.
c–f. ♂ ♀ et ♀ imm. Ibaga, Baro River, March 27th.

128. Himantopus himantopus.

Himantopus himantopus Linn.; Reich. i. p. 207 (1900); Grant, p. 460.

Himantopus candidus (Bonn.); Butler, p. 398.

a, b. ♂ ♀. Baro River, February 13th & 14th.

129. LIMOSA ÆGOCEPHALA.

Limosa limosa (Linn.); Reich. i. p. 213 (1900); Grant, p. 461.

Limosa ægocephala (Linn.); Butler, p. 397.

a, b. ♂. Khartum, December 31st and January 1st.

130. LOBIVANELLUS SENEGALLUS.

Lobivanellus senegallus Linn.; Reich. i. p. 193 (1900); Grant, p. 459; Neumann, 1904, p. 331; Butler, p. 394.

a. ♂. Baro River, February 16th.

131. HOPLOPTERUS SPINOSUS.

Hoplopterus spinosus (Linn.); Reich. i. p. 186 (1900); Grant, p. 459; Neumann, 1904, p. 331; Butler, p. 395.

a. ♀. Khartum, January 14th.
b, c. ♂ ♀. White Nile, January 26th.
d, e. ♀. Fashoda, January 31st.
f, g. ♀. Baro River, February 13th & 16th.

132. ÆGIALITIS HIATICOLA.

Charadrius hiaticula Linn.; Reich. i. p. 174 (1900).

Ægialitis hiaticola Grant, p. 460; Butler, p. 396.

a–c. ♀. Khartum, January 1st & 12th.

133. ÆGIALITIS DUBIA.

Charadrius dubius Scop.; Reich. i. p. 175 (1900).

Ægialitis dubia Grant, p. 460; Butler, p. 396.

a. ♂. Khartum, January 2nd.
b. ♂. White Nile, January 21st.
c. ♀ imm. Baro River, February 15th.

134. GLOTTIS NEBULARIUS.

Totanus littoreus (Linn.); Reich. i. p. 217 (1900).

Glottis nebularius (Gunn.); Grant, p. 462.

Totanus canescens (Gmel.); Butler, p. 397.

a. ♂. Kaig, March 7th.

135. PAVONCELLA PUGNAX.

Totanus pugnax (Linn.); Reich. i. p. 216 (1900).

Pavoncella pugnax Grant, p. 462; Butler, p. 397.

a–c. ♀. Khartum, January 1st & 12th.

136. TRINGA MINUTA.

Tringa minuta Leisl.; Reich. i. p. 233 (1900); Grant, p. 463; Butler, p. 396.

a–h. ♂ ♀. Khartum, January 1st, 2nd, & 12th.

i. ♀. Baro River, February 16th.

137. TRINGA SUBARQUATA.

Tringa subarquata (Güld.); Reich. i. p. 230 (1900); Grant, p. 463; Butler, p. 396.

a–d. ♂ ♀. Khartum, January 1st & 12th.

138. GELOCHELIDON ANGLICA.

Gelochelidon nilotica (Hasselq.); Reich. i. p. 51 (1900).

Gelochelidon anglica (Mont.); Grant, p. 464.

Sterna anglica Butler, p. 382.

a. ♂. Khartum, December 30th.

139. RHYNCHOPS FLAVIROSTRIS.

Rhynchops flavirostris Vieill.; Reich. i. p. 76 (1900); Grant, p. 464; Neumann, 1904, p. 326.

Rhynchops flaviventris (sic) Butler, p. 382.

a. ♂. Baro River, February 24th.

140. TURTUR DECIPIENS.

Turtur decipiens Finsch & Hartl.; Reich. i. p. 412 (1901); Grant, p. 465; Butler, p. 359.

a. ♂. Kaig, Baro River, March 4th.

b. ♀. Lake Tinero, March 28th.

141. ŒNA CAPENSIS.

Œna capensis (Linn.); Reich. i. p. 429 (1901); Neumann, 1904, p. 350; Grant, p. 467; Butler, p. 359.

a–c. ♂ ♀. Khartum, January 10th.

d, e. ♂ ♀. Kawa, White Nile, January 28th.

142. VINAGO WAALIA.

Vinago waalia (Gmel.); Reich. i. p. 393 (1901); Grant & Reid, p. 695; Butler, p. 358.

Vinago waalia cinereiceps Neumann, 1904, p. 341.

a. ♀. Kaig, Baro River, March 4th.

b. ♂. Polkom, Baro River, March 24th.

c. ♂. Lake Tinero, Baro River, March 26th.

d, *e.* ♂. Ibaga, Baro River, March 27th.

The male bird described by Mr. Neumann as belonging to a new subspecies was procured at Lake Tata, on the Gelo, within a hundred miles of the Baro River; but our specimens from the same district do not differ in any way from the typical *V. waalia*. Among the examples collected by Mr. E. Degen in Abyssinia there is one agreeing more or less with the description of *V. w. cinereiceps*.

143. NUMIDA PTILORHYNCHA.

Numida ptilorhyncha Licht.; Grant, p. 469; Butler, p. 388.

a, *b.* ♀. Ibaga, Baro River, March 27th.

XXXIV.—*Suggestions as to the Functions of the Entotympanic Muscle in the Common Snipe.* By W. H. WORKMAN, M.B.O.U.

WHILE I was snipe-shooting towards the end of last year my attention was specially drawn to the construction of the bill of the Common Snipe (*Gallinago cœlestis*); and I examined the heads of a number of specimens with a view to finding out the means by which the soft and pliable anterior part of the upper mandible is lifted.

The fact of this bird being able to raise the tip of the upper mandible seems to be well known, as Professor Newton says:—

"The flexible part commonly lies behind the nasal cavities, but in *Trochili* and *Scolopacidæ* far in front of the nostrils, so that only the anterior part of the upper mandible is movable, and motion can be effected while the mouth is closed. In some Plovers and Ibises, and probably a few other birds also, such a flexible region exists besides the usual fronto-nasal one." *

M. Hérissant, in an article entitled "Observations Anatomiques sur les Mouvements du Bec des Oiseaux," in 'Histoire de l'Académie Royale des Sciences,' 1748 (published in Paris in 1752), pp. 345–386, pls. 15–23, gives a most interesting account of his observations on various birds, which might well be reprinted in full for the benefit of those who have not access to this rare volume. Hérissant observed two different movements when a bird opens its beak, the ordinary method of lowering the point of the lower mandible and, secondly, a tilting of the upper mandible. I give below a translation of the part of his paper dealing with the muscles employed in this action, which is particularly interesting, as there is a certain similarity between this description and my observations on the Snipe. On pp. 370–372 Hérissant describes the muscles used to open the bill as follows:—

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* Dict. B. p. 877, note 2.

"The first of these muscles is that which I have just described; when contracting, it begins to raise feebly the posterior extremity of the lower mandible.

"The second is a little flat one, fleshy and almost triangular, placed obliquely behind the quadrate, which it so nearly touches that its anterior fibres are obliged to bend in order to give room for the inferior posterior angle of this bone. I shall call this the Triangular Muscle.

"It is attached along the posterior edge of the external auditory meatus and to the mastoid apophysis; from there it descends obliquely from behind forwards, above a strong ligament, to which it is adherent, and passes underneath the posterior inferior angle of the quadrate. Subsequently it goes to a fleshy insertion on the external face and even on the edge of the apophysis which terminates posteriorly each branch of the lower mandible immediately behind the articular surface seen there.

"The third muscle is a little longer, broader, and thicker than the former; it is situated at the lateral internal part of the serpiform apophysis of the lower mandible. Its shape approaches that of a square, one of the angles of which is lengthened out more than the other. I shall call this the Square Muscle.

"It is attached above to the lateral internal face of the mastoid apophysis by a flat surface, partly fleshy and partly sinewy, and fills the entire hollow which one sees there; it then descends a little obliquely in order to attach itself by a fleshy mass to the lateral internal face of the serpiform apophysis, and occupies the fossa to be observed under the articular face of the lower mandible. This muscle is, moreover, attached along the posterior edge of the styloid apophysis, which is close to the articular face that I have just mentioned. It is separated from the foregoing by the ligament of which I have already spoken, which is placed between them both, to give them their attachment.

"All these muscles, on being contracted together, strongly elevate the posterior extremities and even the two articular surfaces of the lower mandible, which, being joined loosely with the lower edge of each quadrate, raise this bone and push it at the same time outwards and forwards, whilst its superior posterior angle rolls on itself in a different direction in the articular cavity of the skull where it is received.

"You will still more readily conceive how the two quadrates may be drawn forward, if you recollect that the anterior fibres of the Triangular Muscle are bent to form a cavity destined to lodge the posterior inferior angle of this bone, which has the effect that, when these muscles come to contract, their anterior or bent fibres tend to straighten themselves, and in consequence force in front the two quadrates, the articulation of which with the base of the skull permits them to move very easily.

"The fourth muscle which co-operates to lift the upper mandible is placed in each orbital fossa on the partition; it is attached by a little fleshy belly under the optic foramen and descends, gathering up its fibres to be inserted in the anterior superior angle of the quadrate and the adjacent parts.

"When this muscle acts, it draws upwards, inwards, and a little backwards the angle of the quadrate to which it is attached, and consequently forces the two inferior angles to advance, which has the effect that the slender or external branch which goes to the upper mandible, being joined by planiform or orbicular diarthrosis with the quadrate, finds itself pushed forward to raise on one side the lower mandible, at the same time that on the other side this same branch moves on the posterior inferior angle of the quadrate.

"Lastly, the fifth muscle somewhat resembles a little pyramid reversed and flattened, so that I shall name it the Little Pyramidal. It is placed at the bottom of the orbital fossa, but more anteriorly than the foregoing, with which it seems to coalesce, although elsewhere these two muscles are quite separated, the one from the other, by their tendon.

"It is attached superiorly by a fleshy belly to the orbital partition and descends obliquely from above downwards, but from before backwards, its fibres converging to end in a little tendon, which is inserted in the superior edge of the posterior extremity of the omoid bone close to its articulation with the quadrate. This muscle has a direction so oblique that it makes a very acute angle with the omoid bone.

"To properly observe this muscle and the preceding one, you only need to remove the eyeball from the orbital fossa, with a large gland which is below, then without much preparation they appear very distinctly.

"The use of the fifth pair of muscles is to pull the omoid bone forwards and a little upwards.

"The anatomical exposition of the muscles of which I have just spoken suffices of itself to make you understand that these organs all contracting at the same time necessarily cause the elevation of the lower mandible. Indeed, the first, second, and third pair of these muscles on contracting elevate strongly the posterior extremities of each branch of the lower mandible, which has the effect that the inferior part of the quadrate, as I have already said, is pushed upwards, forwards, and outwards."

As will be seen, the latter part of this quotation concerns the entotympanic muscle.

To return to my own experiences on the Snipe, I began by stripping off the skin and feathers of the head, to reveal the exterior bones, especially those connected with the bill. I found the upper mandible to be chiefly composed of the *premaxillary*, which is rigidly fused to the frontal bones of the skull; next I found the *maxillary* running along the edges of the premaxillary and incased in a blackish sheath, but not attached rigidly to it. This bone divides posteriorly, the maxillary portion running upwards to the frontals, where it is attached. The other part is continued by the *jugal* and the *quadrato-jugal*, this latter being attached to the quadrate which lies just beneath the ear-cavity. Now, by grasping the upper mandible of a fresh specimen about the middle with my finger and thumb, and catching the maxillary at the fork with a pair of forceps, I found by moving the forceps I was able with very little force to push the maxillary forward, and so lift the anterior part of the upper mandible, as shown in the figure (p. 619), and also depress it by reversing the action.

As to the muscles concerned in carrying out this movement, it will be seen from the account given by Hérissant how they act in birds generally, but an account of my own experiments may be of interest to the readers of 'The Ibis.'

I made a number of dissections and found that the entotympanic muscle was the muscle that pulled forward the quadrate and pterygoid bones. This is Shufeldt's * description of it:—"The entotympanic is a small, spindle-shaped muscle, which arises quite fleshy from the sides of the basisphenoid, and to a limited extent from the base of the rostrum immediately beyond it. As it passes backwards and downwards, it rapidly contracts to form a double tendinous slip. One of these is inserted into a little spine-like process on the upper side of the shaft of the corresponding pterygoid, close to its quadratal articular end. The other is inserted into the quadrate itself, close to the pterygoidal articulation, and to its outer side.

"When these muscles contract, they pull forward the quadrates and pterygoids, which latter, in pushing against the palatines, tend to raise the superior mandible."

Now I found, on carefully removing the pterygoideus

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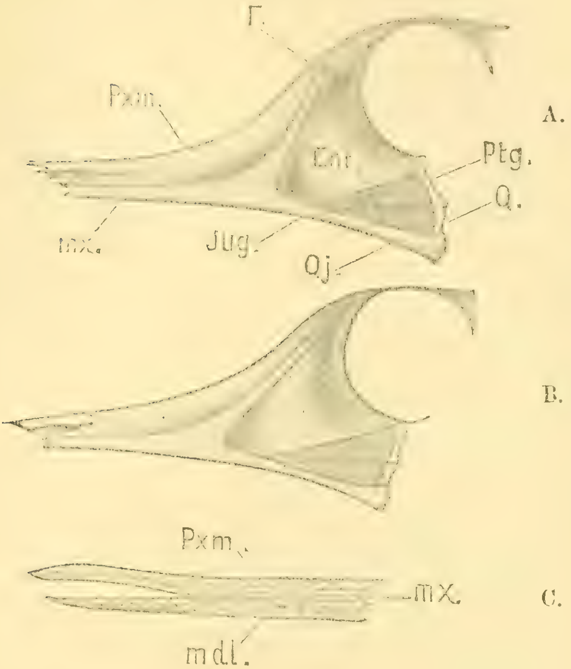
* 'Myology of the Raven,' pp. 19, 20.

Text-figure 34.



Rough sketch shewing the action of the entotympanic muscle of the Common Snipe.
(Semi-diagrammatic.)

A = Sketch shewing the position of the muscle.
B = Sketch to illustrate the muscle contracted.
C = Sketch shewing the effect of contraction of the muscle on the anterior portion of the bill.

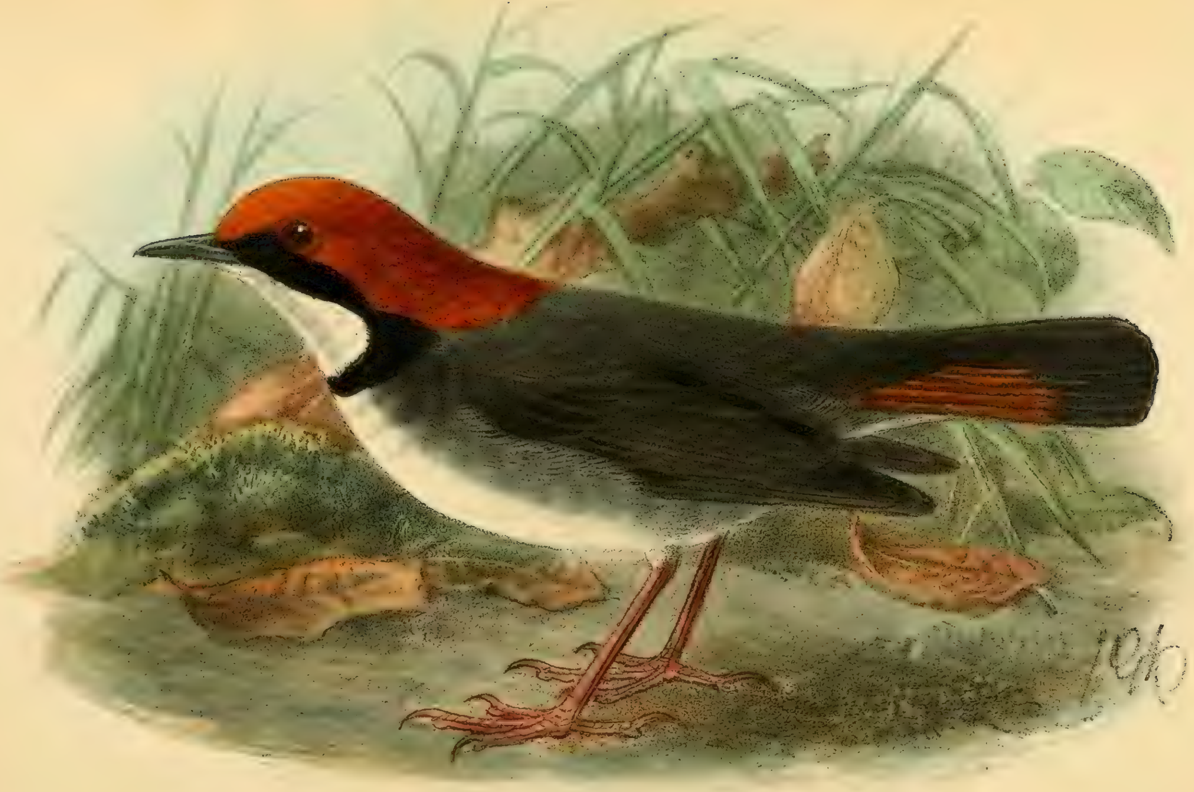
Pxm. = Premaxillary.
mx. = Maxillary.
F. = ,, attachment to frontal bone.
mdl. = Mandible.
Jug. = Jugal.
Q. = Quadrate.
Qj. = Quadrato-jugal.
Ptg. = Pterygoid.
Ent. = Entotympanic muscle.

internus, that immediately beneath it there lay a large muscle, which appeared to be, in the Snipe, the counterpart of the entotympanic in the Raven, but relatively very much more powerful, as I had expected.

This muscle, instead of running obliquely across the skull as in the Raven, has a powerful origin, and runs almost directly backwards, at the same time dividing into two slips, one of which is strongly attached to the quadrate, and the other equally strongly to the pterygoid, as illustrated in the figure.

Now we may suppose when these muscles contract they pull forward the quadrates and pterygoids. They in turn would transmit this movement to the quadrato-jugals, jugals, and maxillaries. The thrust of the maxillary would in turn be conveyed to the premaxillary, which naturally would yield at its most flexible part—about an inch, in the Common Snipe, from the tip, as shown in the figure (text-fig. 34, p. 619). Now that this is what takes place I think may be proved by making a dissection as described above, so as to lay bare the entotympanic muscle, then move up and down the tip of the upper mandible, watching the while the action of the muscles. This, taken with the movement of the maxillary when held with the forceps as described above, would seem to be fair proof that such an action exists. It also seems reasonable to suppose that a Snipe which gets its food in soft heavy ground would find, on pushing down its long bill, great difficulty in opening it enough to grasp the small insects, &c., of the presence of which the nerves at the tip of the upper mandible have already given warning. How much more easy would it be if only the tip were lifted or opened just enough to catch its food, which would be firmly held till withdrawn from the ground, when the tongue and tooth-like processes on the upper mandible would draw the prey into the mouth. Again, if the Snipe was to open the whole beak when submerged, mud and other foreign matter would fill up the tooth-like processes and interfere with the swallowing of the food.

In concluding this short paper, I should like to add that



West, Newman imp.

LARVIVORA RUFICEPS.

it was with great trepidation that I took up my pen to make the few suggestions noted above on the method of the feeding of the Snipe, but I hope that they may be of some interest to the Members of our Union, many of whom are both sportsmen and naturalists, as they deal with a bird with which they are so familiar, and on which so much has already been written.

XXXV.—*On some rare Species of the Genus* Larvivora *from China.* By Ernst Hartert, Ph.D.

(Plate XIII.)

Easy as it is to define the area of the Palæarctic faunal region in some parts—as, for example, in the west, where the Sahara (especially as its interior is not yet zoologically explored) forms a most convenient boundary, and between Tibet and India, where the enormous chain of mountains called the Himalayas effects a natural separation,—this becomes very difficult in other countries, and, in fact, most intricate in China, where, at least in the more eastern parts, no sharp line of division exists at all. Every addition to our knowledge of the interior of China is therefore extremely welcome. Much has been lately added by Messrs. La Touche, Styan, and Rickett, who have written valuable articles in the recent volumes of 'The Ibis'; but much more remains to be done.

The mountain-chain known as the "Tsin-ling," crossing China in a direction from west to east, is comparatively little explored. Nearly all we know of it is what has been effected by Bianchi and other Russian ornithologists, as the results of the explorations of Berezowski and other Russian travellers in Southern Kansu. It was therefore with great satisfaction that Mr. Rothschild acquired for the Tring Museum a collection offered by Mr. Alan Owston, which had been made on Mt. Tai-pai-shan in the Tsin-ling Mountains. This collection is very large, but sufficient attention has apparently not been paid to the small and inconspicuous forms which it contains; nevertheless, there are rare and even unknown species among them. A special interest is attached to this collection, because the Tsin-ling Mountains appear to be the southern boundary of a number of Palæarctic species.

The district is evidently rich in species of the genus *Larvivora,* a section—if separable at all, and certainly, so far, of doubtful limitation—of the genus *Erithacus,* as accepted in the 'Catalogue of Birds.'

Three species of *Larvivora* are represented in this collection :—

1. LARVIVORA OBSCURA.

Larvivora obscura Berez. & Bianchi, Aves Exped. Potanin. Gansu, p. 97, pl. i. fig. 2 (1894 : Kansu).

This rare bird was hitherto only known from the single adult male obtained by Berezowski. The present collection contains four males only, shot in May and July on Mt. Tai-pai-shan "halfway up." There can be no doubt that the species belongs to the genus *Larvivora.* The female is not yet known.

2. LARVIVORA DAVIDI.

Calliope davidi Oustalet, Bull. Mus. Paris, 1892, p. 222; Arch. Nouv. Mus. Paris, Mém. ser. 4, iii. p. 271, pl. xi. (1901).

Eight specimens of this remarkable bird had been sent to the Paris Museum from Ta-tsien-lu in Szechuan. If the genera are separated, *L. davidi* doubtless belongs to *Larvivora* and not to *Calliope,* though it has a red throat. Our collection contains one male and one female of *L. davidi* from Tai-pai-shan, shot "halfway up" on July 6th and 10th.

Neither *L. obscura* nor *L. davidi,* though undoubtedly Palæarctic forms, have been mentioned in Dresser's 'Manual of Palæarctic Birds.'

3. LARVIVORA RUFICEPS. (Plate XIII.)

Larvivora ruficeps Hartert, Bull. B. O. Club, xix. p. 50 (Feb. 1907 : Tai-pai-shan).

Of this fine new species three males and one female were obtained in July (10, 12, 13, 15. vii. 1905) "halfway up."

I have described the male (*l. c.*) as follows :—

"♂ *ad.* Crown and hind-neck orange-rufous; back and rump slate-grey, upper tail-coverts slaty-black. Quills slate-coloured, the edges of the outer webs slightly paler, those of the inner ones whitish-brown. Rectrices orange-rufous, middle pair with the apical third and the borders of the outer webs slaty-black. Lores, and a broad stripe under the eyes and encircling the throat, black; throat white. Feathers below the black circle, as well as those on the sides of the throat and body, slaty-grey; middle of the abdomen white. Under tail-coverts white with slate-grey edges. Thighs greyish. 'Iris russet; bill slate-black; feet pinkish-buff.' Wing about 79–81 mm., tail about 52–56, metatarsus 27, culmen 16–16·5."

The female was shot on July 15th, and may be described as follows:—

♀ *ad.* Upper surface olive-brown, slightly more rufescent on the forehead and upper tail-coverts. Quills dark brown, edged with the colour of the back, rectrices similar, but slightly more brownish. Inner edges of the quills pale brownish. Under surface white, sides olivaceous, chest tinged with buff, feathers of the throat and breast fringed with olive-brown, thus producing a mottled or almost scaly appearance. Under tail-coverts edged with olive-brown. Wing 79 mm.

The female of *L. davidi* is nearly similar to that of *L. ruficeps*, but above of a deeper olive, with the upper tail-coverts more rufescent.

XXXVI.—*Obituary.*

Professor Alfred Newton, F.R.S., and Mr. Charles Augustus Wright.

I.—Alfred Newton.

Death has been busy of late amongst the original members of the British Ornithologists' Union. Not to mention the name of Osbert Salvin, whom we lost some nine years ago, we do not forget the recent deaths of Edward Cavendish Taylor and Henry Baker Tristram; and now we have to record the loss of ALFRED NEWTON, who died at Magdalene College, Cambridge, on the 7th of June, 1907. By a curious coincidence, this happened to be the day of the celebration of the bicentenary of Linnæus, and the sad news, as it circulated among the Fellows of the Linnean Society, served to cast a gloom over the proceedings of the evening.

Alfred Newton was born at Geneva on the 11th June, 1829, and thus, at the time of his decease, only wanted four days of completing his 78th year. He was one of a large family of brothers and sisters, and his father was the owner of the well-known estate of Elveden, on the borders of Suffolk and Norfolk, famous for its partridges. In fact, the eldest brother, William, one of the few survivors of the Coldstreams at Inkerman, and the youngest brother, Edward, well known to many of the members of the B. O. U., ranked amongst the crack partridge-shots of their day. Nor was Alfred at all averse to this sport, though his lameness, said to have been the result of an accident during infancy, was always a bar to any great physical exertion. Perhaps it was this cause which rendered him more contemplative and observant of the features of the very interesting district in which it was his good fortune to spend his early years.

There is no record of Alfred having been to a public school, but when he came to Cambridge as an undergraduate, in 1848, he was already a thorough-going naturalist, both by nature and by habit. For this reason, perhaps, the ordinary *curriculum* of the University was distasteful to him; nor was his early devotion to natural history always regarded with approval at home, being considered unlikely to conduce to success in after-life. Yet he obtained a considerable reputation in his College as an essayist in English, and his love for natural history was the making of him, though no one exactly anticipated the distinguished career that he was destined to achieve. Had he chosen the law as his profession, which might well have been the case, he would have made an excellent barrister, and there is nothing he would have enjoyed more thoroughly than the cross-examination of a prevaricating witness.

Newton was elected to the Drury travelling fellowship, for the sons of Norfolk gentlemen, at Magdalene in 1853, shortly after taking his B.A. degree, and went abroad in pursuit of the knowledge which most interested him for several years. To anticipate: some time after the travelling fellowship had expired, viz. in 1877, his College elected him to a Foundation Fellowship, and he continued to reside in the Old Lodge at Magdalene, which had been his headquarters for some years previously.

In the course of his many journeys Newton's predilections seemed to favour the Arctic. Thus we find him the companion of John Wolley in Lapland during the summer of 1855. Again, in 1858 he accompanied his friend to the last home of the Great Auk, or "Garefowl" as he loved to call it, in Iceland, and spent the early part of a rather miserable summer in that island. The last of his northern excursions took place in 1864, when he accompanied Sir E. Birkbeck in his yacht to Spitsbergen. Meanwhile he did not neglect more southern climes, since we find him in the West Indies in 1857, whence he proceeded to the U.S. of America, partly for the purpose of conferring with the naturalists of Philadelphia and Washington. Again, in 1862 we find him crossing the Atlantic, but he must have returned to England early in the following year, since the paper in 'The Ibis' relating his experiences at Madeira is dated "Elveden, Feb. 28th, 1863." Moreover, this was the last time that Newton dated from the paternal mansion, which was shortly to be occupied by the Maharajah Dhuleep Singh. It must not be supposed that Newton never travelled in subsequent years, but it is probable that the period of his great travels was over at the time that he was elected to the newly constituted Chair of Zoology and Comparative Anatomy at Cambridge in March 1866. This event would act as a stay upon him, and may naturally be regarded as the turning-point in his career.

We must now, as in private duty bound, consider Alfred Newton in his relations to the B. O. U. There may have been some mistake lately made as to the precise share that he took in its foundation, but we have only to read the preface to the first volume of 'The Ibis,' when the facts were fresh in the Editor's (Dr. Sclater) recollection, in order to perceive that it was not only founded at Cambridge, but that it was to a considerable extent planned there ; and we may feel sure that Alfred Newton's influence, as the leading ornithologist in the University, had its due weight in establishing it. The question of founding an ornithological union was certainly discussed at the meeting of the British Association at Leeds in September 1858, where men from Cambridge, including Wolley and Newton, enjoyed the advantage of conferring with representatives of the sister University.

No sooner was the B. O. U. founded than Alfred Newton became an important contributor to 'The Ibis.' Not to mention his joint paper on the "Birds of St. Croix," we find in the first two volumes certain unsigned communications which are in singular contrast to each other, and which shew the different phases of his character. The first of these is a review of Bree's 'Birds of Europe not observed in the British Isles,' and this serves to illustrate the critical side of Newton's mind, as he never could endure anything like inaccuracy. But he went a step beyond what is usual in criticizing in anticipation that portion of Bree's work which had not yet appeared. The second communication, viz. "A Memoir of the late John Wolley," displays the other side of Newton's character. He gives an interesting and, we may be sure, accurate history of his friend, and the concluding paragraph of this essay—an essay subsequently expanded in the Introduction to the 'Ootheca Wolleyana'—affords an insight into his truth-loving and affectionate nature. This was followed by two important papers in the third volume, viz. "Particulars of Mr. J. Wolley's Discovery of the Breeding of the Waxwing (*Ampelis garrulus*)" and "Abstract of Mr. J. Wolley's Researches in Iceland respecting the Garefowl or Great Auk (*Alca impennis*)." Thus we perceive that he lost no time in doing justice to the labours of his deceased friend, whilst he was also making valuable contributions to ornithology. His last great paper in the first series of 'The Ibis' was on the "Irruption of Pallas's Sandgrouse (*Syrrhaptes paradoxus*) in 1863." This, as usual, he wished to defer until further information had been obtained, but he was prevailed upon to write whilst the subject was still fresh in the mind of the public. The paper concludes with a strongly-worded protest against the inhospitable treatment of these interesting Siberian migrants in search of a new home. Some years afterwards (1888) there was another irruption, especially into Scotland, and Newton had the pleasure of receiving a newly-hatched chick from the sand-hills of the Moray Firth, which he exhibited at the ensuing meeting of the British Association, and which was duly figured in 'The Ibis' (1890, pl. vii.).

It may be mentioned here that there were two subjects in which Newton was especially interested, and on which he occasionally wrote in 'The Ibis.' The first of these relates to the Avifauna, existing and extinct, of the Mascarene Islands. He managed, in conjunction with his brother Edward, sometime Colonial Secretary of the Mauritius, to procure a fine series of bones of the Dodo from that island, and also of the Solitaire of Rodriguez (*Pezophaps solitarius*). He remarks that "a more wonderful structure than the Dodo's skeleton it is not easy for an ornithologist to conceive." The second of the two subjects relates to the Great Auk, which he may be said to have inherited from Wolley, and on which he was engaged at the time of his death. He made a sort of census of the remains of this bird known to exist about 1870, and returned them as consisting of 72 skins, 9 skeletons, the separate bones of about 40 individuals, and 65 eggs. His last notice respecting it in 'The Ibis' was written in 1898, when he described, not without a touch of emotion, the "Orcadian Home of the Garefowl," and referred to the tragedy of 1813 (*op. cit.* p. 587). His annual cruise with the late Henry Evans in Scottish waters gave him the desired opportunity, and he succeeded in discovering a low platform of rock, protected by the larger island of Papa Westray, where there would be room "for a regiment of Auks to have landed at any state of the tide, and to have marched in line up the gentle ascent."

From 1865 to 1870 Newton edited the second series of 'The Ibis,' and we may be sure that due attention was paid to the notices of works on ornithology, whether published at home or abroad. He was ably supported, as the Editors have been at all times, and, in resigning the editorship in October 1870, pleaded that engagements no less pressing than numerous had for some time past urged upon him the advisability of retiring, and he announced Osbert Salvin as his successor.

His retirement was scarcely to be wondered at, for Professor Newton was becoming a public character, and must have had his hands full of work for some time. He was never idle, and if not occupied with his students at Cambridge, he was either fighting for the cause of Bird-Protection in London and elsewhere, or writing long articles, especially in the 'Field,' or providing an appendix to this or that publication. Whenever there was a question of Birds everybody turned towards Newton. He had to prepare an appendix to Baring-Gould's 'Iceland,' to the 'Arctic Manual,' to Lubbock's 'Fauna of Norfolk,' &c. This last appendix, dealing with the subject of 'Hawking in Norfolk,' is particularly interesting, as Newton had had considerable personal experience in this matter, having frequently accompanied his former neighbour, the late Edward Clough Newcome (an original member of the B. O. U.) on his expeditions. This gentleman, as is well known, endeavoured to resuscitate the favourite sport of the Middle Ages, and for some years carried on the pursuit with considerable success in the wilds of South-west Norfolk.

When not specially engaged at Cambridge, Newton was by no means neglectful of the Royal, the Zoological, and other Societies, and was often a conspicuous figure at the meetings of the British Association. He also took much interest in the 'Zoological Record.' He was chairman of the Close-Time Committee and of the British Association Committee on the Migration of Birds. Elected F.R.S. in 1870, he was a Vice-President both of the Royal and Zoological Societies. Somewhat late in life (1901) he was awarded one of the Royal medals, and Lord Lister took occasion to remark that the progress of ornithology in this country was due mainly to his "critical, suggestive, and stimulating influence." In the same year he was also awarded the gold medal of the Linnean Society.

As an ornithological writer Newton obtained a world-wide reputation. Amongst his numerous publications we might perhaps select the first two volumes of the fourth edition of 'Yarrell,' the 'Dictionary of Birds,' and the 'Ootheca Wolleyana' for special notice. There can be no doubt that a great impulse was given to the study of British Birds by his preparation of the fourth edition of 'Yarrell,' which, so far as he went, was thoroughly brought up to date. But here comes in one of Prof. Newton's peculiarities. The first volume appeared in 1874, and the second was not completed until 1882—rather a long time for the subscribers to remain in suspense. The fact is that the Editor was always waiting for fresh matter and, rather than turn out an imperfect piece of work, he was content to wait, and so the fourth edition of 'Yarrell' was finished—and well finished—by another hand. The 'Dictionary of Birds' stands on a somewhat different footing. We have already seen that, when the subject of Birds had to be dealt with, editors and publishers always turned to Alfred Newton; and thus it came to pass that during the publication of the ninth edition of the 'Encyclopædia Britannica' he was chosen, as a matter of course, to write about Birds. That he was one of the most valued contributors to that very useful publication no one can doubt, and the numerous articles bearing his signature have been incorporated, with some additions and emendations, in the 'Dictionary of Birds,' to which also other writers of eminence have contributed. The article "Birds," for instance, is essentially composite, whilst that on "Fossil Birds" has been largely reconstructed with the help of Mr. Lydekker, and formed the subject of an address delivered before the Second International Ornithological Congress at Budapest in 1891. The article "Ornithology" is Newton's very own and embodies in a most condensed form the results of his long experience. That there still remained a touch of caustic in the author can be inferred from a note in the Introduction, where he expresses a hope that persons indifferent to the pleasures of Natural History may find in it (*i. e.* in the Dictionary) some corrections to the erroneous impressions commonly conveyed by sciolists posing as instructors.

The 'Oothecа Wolleyana' has been justly described as a monumental work, since, as the editor and joint-author remarks, it is largely a record of ancient friendships. It may be safely asserted that none but the late editor possessed the knowledge to undertake or the perseverance to execute this enormous compendium of oological research. The whole of the huge Wolley collection of Birds' Eggs had devolved upon him, and this, in conjunction with his own accumulations of over half a century, he presented in his lifetime to the University of Cambridge.

Hitherto we have regarded Newton mainly as an ornithologist, but we must also consider him in the more extended domain of zoology, bearing in mind that he occupied that chair at Cambridge for a period of forty-one years. From early days he evinced considerable interest in the anatomy of vertebrates, and especially in osteology, which he certainly was very competent to teach.

One of the most distinguished of his many pupils says of him: "As to his lectures, these, despite the fact that he was to a great extent a specialist in ornithology, covered a very wide field, in which, however, the systematic and distributional aspects of the subject loomed large." His paper (1862) before the Cambridge Philosophical Society, of which body he was a Vice-President at the time of his death, on the "Zoology of Ancient Europe," shewed his grasp of locality; and indeed he had at all times a most extensive acquaintance with geography. Moreover, he was very facile with the pencil, and this helped him materially in demonstration. His 'Manual of Zoology' is said to enjoy a good reputation, and a second edition was issued in 1894.

In close connexion with his professional duties was his attention to the Museum of Zoology, another object of devotion in addition to his Egg-collection. During the last forty years the Museum of Zoology at Cambridge has been greatly expanded, and no one worked more assiduously in his own line than the Professor. Some men are born collectors, and Newton was one of them. He not only collected himself, but he induced others to collect, so that, in consequence of his world-wide correspondence, there has been a constant flow of treasures into the Cambridge Museum.

But Newton did not confine his attention solely to objects of Natural History, for he possessed the collector's knack of acquiring old books, old MSS., old maps, &c., mostly bearing on his favourite subjects. It seems that in the ninth edition of the 'Encyclopædia Britannica' there is no article on Museums, and consequently he prepared a paper for the special delectation of the "Museums Association," which was duly read at one of their meetings.

There are some amusing incidents narrated in this essay, and amongst others the fate of the Leverian Museum, which seems to have been refused by the trustees of the British Museum when offered in 1775. Ultimately, about 1806, the collection was sold piecemeal, the sale lasting, off and on, for 62 days. As a curiosity, Newton was able to exhibit a copy of the sale-catalogue. Another instance may be given, viz., when Dr. Bowdler Sharpe was writing the 'History of the Collection of Birds in the British Museum,' Newton was able to lend him a copy of the sale-catalogue of Bullock's Collection, of which only two copies are known. The same authority also informs us that the naturalists visiting Cambridge at the time of the International Ornithological Congress of 1905, greatly enjoyed an inspection of his literary curiosities, including his library of rare and choice ornithological works. These with many other treasures have been bequeathed to the University of Cambridge.

As the author of an article entitled "The Early Days of Darwinism" (Macmillan's Magazine, 1888), Prof. Newton's views on the subject of "Organic Evolution" are not without interest. He is said to have been an early convert, but in point of fact he was in a condition ready for conversion some time before the appearance of the 'Origin of Species' (in the autumn of 1859). Both he and his philosophic friend, Wolley, had concluded that the idea, then prevalent, of special creations was out of harmony with the facts they had been observing for many years. Wolley died just about the time when Darwin's book came out; but Newton at once perceived that Darwin's explanation went a long way towards solving his own difficulties, and he simply *adopted* the new philosophy, not being in need of *conversion.* In the above-mentioned article he has told the story very well, and his narrative of events at Oxford in 1860 provides an excellent account of that memorable meeting.

Henceforth a familiar figure will be missed at Cambridge, for though Newton had ceased to lecture, he still continued to work at his collections, and to exercise that social influence in his College and in the University which so endeared him to more than one generation of students. On the whole, he may be considered to have been fortunate in the period wherein his lot was cast—a period when increased facilities for travel were opening out regions hitherto inaccessible to the explorer and the naturalist. For instance, he lived to see the veil lifted from such countries as Central Asia and Central Africa, which were complete blanks in the maps of half a century ago. Of course, in this respect, he merely shared the advantages with others of his contemporaries who were equally ready to profit by them. Still, it must be borne in mind that such discoveries and acquisitions have their limits, and cannot be repeated in the history of exploration. It is so much to his credit, therefore, that he made the most of the opportunities thus afforded; and if we view his character broadly, as a student of nature and a self-taught man in his early years, as an enthusiastic man of science in later life, and at all times as a firm friend and a genial companion, we recognise one who was *sui generis* in his day and representative of a type not likely to be replaced.

This notice must not close without a special allusion to Professor Newton's great kindness to students of ornithology less advanced than himself. Always encouraging and stimulating their efforts, he rendered them every assistance in his power, and his library was ever at their service. In this respect alone his death creates a blank which it will be impossible to fill.—W. H. H.

II.—Charles Augustus Wright.

It is with great regret that we have to announce the death of Mr. Charles Augustus Wright, of Kayhough, Kew Gardens Road, in his 74th year. The son of Mr. John Wright, of Cumberland Terrace, Regent's Park, he was born on April 2nd, 1834, and before the age of thirty settled in the island of Malta, where, during a residence of more than twelve years, he occupied himself in working at the Natural History of the group. As founder and Editor of the 'Malta Times,' he took a large part in the politics of the day, while as special Mediterranean correspondent of 'The (London) Times' he was the author of various articles on naval matters. He was by no means neglectful of the antiquities and fossils of Malta, and was at one time Vice-President of its Archæological Society; but his chief bent was in the direction of Ornithology, Conchology, and Botany, in all of which branches of science he amassed large collections. He was a Fellow of the Linnean and Zoological Societies, and a member of various local bodies, while he was elected to our Union in 1875, on his final return from the Mediterranean. The Order of Knight of the Crown of Italy was subsequently conferred on him, in 1883, in recognition of his ornithological studies.

Mr. Wright was one of the very early contributors to 'The Ibis,' and furnished it with several important papers on the Birds of Malta and Gozo between 1863 and 1874, the first being an account of a visit to the islet of Filfila. He also wrote in Maltese on "Birds observed in Malta and Gozo" for the 'Maltese Encyclopedia of Natural History' in 1862, and published an article in the 'Proceedings' of the Zoological Society of London for 1875 on the peculiar Weasel of the island, while he was recognised as the greatest authority on the Natural History of the group.

XXXVII.—*Notices of recent Ornithological Publications.*

[Continued from p. 507.]

84. *Allen on the Types of the North-American Genera of Birds.*

[The Types of the North-American Genera of Birds. By J. A. Allen. Bull. Am. Mus. N. H. vol. xxii. art. xvi. pp. 279-384 (1907).]

This is an essay upon what is known as the "method of elimination" used by some systematists to ascertain the correct types of genera in zoology when the author of the generic term has omitted to specify them. Mr. Allen describes this doctrine as follows:—"All agree that a generic name proposed for a heterogeneous group of species should be used for one of its original components. If in the course of its dismemberment all the component species have been removed to other genera, the name of the original genus should be restored to the component of the group which was last removed. If a part of the component species have been thus taken out and others left, the reviser of the genus can select any one of the remaining species as its type, and such assignment cannot afterwards be interfered with. In case none of the original species have been removed, the first reviser has the right to designate any one of the original species as the type of the genus."

Against the "method of elimination," which certainly leads to some unfortunate results if severely applied, Mr. Witmer Stone and others have promulgated the plan that the *first* species of such compound genera should always be taken as the type, and maintain that this is far the simpler method and easier of application. Yet so "evidently disastrous" would be the "method of priority" if unrestricted in its application, that its advocates do not propose to bring Linnæus's names within its scope. To do so would, in fact, necessitate the alteration of many of our most familiar names, especially in the case of those writers who insist on using the tenth edition of the 'Systema Naturæ.'

In order to compare the relative merits of the two rival systems—"elimination" and "selection of the first species,"—Dr. Allen takes the genera of North-American birds for a trial test, with the view of discovering which of the two systems will involve the greater number of changes of names. The last edition of the 'Check-list' and its supplements contain the names of 415 genera and subgenera. These are all discussed by Dr. Allen in due order, and their types and the reasons for selecting the types are clearly explained. Before this is done, however, two chapters are introduced concerning the "First Reviser" and "Brissonian Genera." The "First Reviser" is defined to be "the author who first designates a type for a genus originally proposed without a type." The usage of the Brissonian generic names, as first proposed in the Report of the British Association Committee on Nomenclature in 1842, is strongly advocated, and has until recently, as Dr. Allen correctly states, met with nearly universal acceptance.

In the summary of his useful paper Dr. Allen shews that the adoption of the "Elimination" plan would necessitate the change of only 4 generic names of North-American Birds, whereas the "First-species" scheme, if strictly applied, would result in the alteration of at least 15 generic terms, and would affect the names of 27 species and 15 subspecies. He therefore pronounces in favour of the former scheme, and those who deprecate changes of names of any sort, when they can be avoided, will doubtless agree with him. But there are others, we fear, who delight in the process of hunting up forgotten names and actually take credit to themselves for discovering them.

In conclusion, we venture to make a few remarks on some of Dr. Allen's determinations, although we fear that they may cause us to be included in his category of those "temperamental kickers who ignore any rule that is contrary to their personal tastes or preferences" (!).

In the first place, we cannot allow that mistakes and faults in writing generic names are not to be corrected when their derivations are obvious. We should, therefore, write *Æthyia* (not *Æthya*), *Leptoptila* (not *Leptotila*), *Œstrelata* (not *Æstrelata*), &c. In the next place, we must protest against the revival of such uncertain and forgotten terms as "*Erolia*" and "*Tangavius.*" It is exceedingly doubtful for what species these names were intended, and there are no known types to consult. Nor can we consent to giving Brisson's generic terms precedence over those of Linnæus, the author of the binomial system. We therefore abjure *Anhinga* and *Paroncella.* The fallacy of making *Ixoreus* applicable to *Turdus nævius* has been already explained on more than one occasion. The type of Bonaparte's genus was not *Turdus nævius* (as he supposed it to be), but *Myiotheretes rufiventris.* This is demonstrated by the mounted specimen in the "Galerie" of the great French museum. True, Bonaparte supposed the bird in question to be *Turdus nævius*, but even princes are liable to make mistakes, and *Ixoreus* is, in fact, merely a useless synonym of *Myiotheretes.*

85. '*The Avicultural Magazine.*'

[Avicultural Magazine. The Journal of the Avicultural Society. New Series. Vol. v. Nos. 6–8, Apr.–June 1907.]

The most striking paper in these numbers is that by Prof. C. O. Whitman, of Chicago, in continuation of a discussion on the direction of evolution as evidenced by the chequers and bars on the plumage of Pigeons; but other regular contributors write, as usual, on individual species or forms of birds. The Rev. H. D. Astley has an article on the Shâma (with a coloured plate of male and female); Mr. D. Seth-Smith no less than four, on *Munia flaviprymna* and *M. castaneithorax* with an intermediate state of plumage, on Lorikeets in captivity, on the Kakapo (*Stringops habroptilus*), and on Mr. Astley's aviaries at Benham Park; Dr. Butler writes on *Icterus vulgaris* (col. pl.); Capt. Perreau on the origin of the Bengalese [Finch]; Mr. Teschemaker on the nesting of *Serinus angolensis* (pl. of nest); and Mr. St. Quintin on the breeding in captivity of the American Wigeon and other species. The paper by Mr. G. Dalgleish on the Moorhens and Coots of India seems to give little new information.

86. *Bangs on Birds from Costa Rica and Chiriqui.*

[Notes on Birds from Costa Rica and Chiriqui, with Descriptions of new Forms and new Records for Costa Rica. By Outram Bangs. Proc. Biol. Soc. Washington, vol. xix. pp. 101–112 (1906).]

This is a description of the novelties and noticeable specimens met with in a series of 3365 skins formed during many years' work by Mr. C. F. Underwood, mostly in Costa Rica, and representing about 611 species and subspecies. Mr. Thayer bought the collection and submitted it to Mr. Bangs's examination. Besides containing representatives of most of the rarer Costa-Rican species, the collection, we are told, is rich in young birds in nestling-plumage; there are also in many cases specimens of the same species both in freshly-moulted and in worn abraded condition, which much increase its value.

The following species and subspecies are described as new:—*Pyrrhura hoffmanni gaudens* (Chiriqui), *Eumomota superciliaris australis* (Costa Rica), *Saucerottia cyanura impatiens* (Costa Rica), *Hypocnemis nævioides capnitis* (Costa Rica), *Xenicopsis variegaticeps idoneus* (Chiriqui), *Thryorchilus ridgwayi* (Costa Rica), *Cyanolyca blandina* (Chiriqui), and *Chlorospingus regionalis* (Costa Rica).

87. *Bangs on the Wood-Rails of America north of Panama.*

[On the Wood-Rails, Genus *Aramides*, occurring north of Panama. By Outram Bangs. Amer. Nat. xli. no. 483 (1907).]

Mr. Bangs reviews the Rails of the genus *Aramides* which occur in America north of Panama, and admits three species, the last (*A. albiventris*) being divided into three subspecies, of which one (*A. mexicanus*) is described as new to science.

88. *Bangs's Notes on various American Birds.*

Besides the articles above mentioned, Mr. Bangs has sent us separate copies of five short papers in the 'Proceedings of the Biological Society of Washington' (vols. xix. & xx.). In the first of these (vol. xix. p. 43) he seeks to alter the well-established name of the Passenger Pigeon (*Ectopistes* *migratorius*). As we prefer to commence our nomenclature with the twelfth edition of Linnæus this proposal does not affect us. In the next paper (xx. p. 29) a new race of the Hepatic Tanager, from Jalapa, Mexico, is named *Pyranga hepatica dextra.* In the third (xx. p. 31) an Owl (*Rhinoptynx clamator*) is added to the Costa-Rican Ornis; it had been previously obtained by Arcé in Veragua. In the fourth (xx. p. 53) the *Coccyzus minor* of the Grenadines (W.I.) is separated as a new subspecies (*C. m. grenadensis*). In the fifth paper (xx. p. 55) Mr. Bangs renames the *Siptornis* of the Sierra Nevada of Santa Marta, which he had previously called *S. antisiensis*, *S. hellmayri*, his attention having been called by Dr. Hellmayr to the differences between these two forms.

89. *Buturlin on Woodpeckers, Nuthatches, and Shrikes.*

[Notes on White-backed Woodpeckers and Rock-Nuthatches. Caucasian and Turkestan Red-backed Shrikes. By S. A. Buturlin. Mitt. d. Kauk. Mus., Bd. iii. Lief. 1. Tiflis, 1907. 80 pp.]

This paper is in Russian, but the author kindly adds a version of it in English. According to M. Buturlin's views, the group of *Dendrocopus leuconotus* embraces 8 species and subspecies, of which *D. sinicus* (from N. China), *D. l. ussurriensis* (from the Ussuri), *D. l. voznesenskii* (from Kamtchatka), and *D. l. carpathicus* are described as new. The Palæarctic Rock-Nuthatches (*Rupisitta*, subg. nov.) are divided into 8 species or races, of which *Sitta zarudnyi* (from Asia Minor) is described as new.

Under another heading M. Buturlin treats of the Red-backed Shrikes of Caucasia and Turkestan. He has already named the Caucasian form "*kobylini*" ('Ibis,' 1906, p. 416); he now points out the characters of the race of Turkestan, and calls it *Lanius* (*Enneoctonus*) *collurio loudoni.*

90. *Buturlin on Bean-Geese.*

[On Bean-Geese. By S. A. Buturlin. Journ. Bombay N. H. Soc. 1907, pp. 603–607.]

This paper is chiefly devoted to criticisms of an article by Mr. E. W. Oates in the same journal (vol. xvii. p. 950), and to the support of M. Alphéraky, with whom Mr. Oates disagreed. We need not enter here into a discussion of the moot points concerning the various forms of Bean-Geese, but may refer to another paper recently published at St. Petersburg by M. Alphéraky himself *.

91. *Catalogue of the Booth Collection.*

[Catalogue of the Cases of Birds in the Dyke-Road Museum, Brighton, giving a few descriptive notes and the localities in which the specimens were found by E. T. Booth. Third edition, 1901. Brighton.]

No naturalist who visits Brighton should fail to inspect the Dyke-Road Museum, in which the splendid collection of British Birds made by the late Mr. E. T. Booth is lodged. We may even say that any ornithologist would do well to make a special journey to Brighton for the purpose. This is certainly one of the best-mounted collections of native birds in the British Islands.

A copy of the third edition of the Catalogue, which was originally written by Mr. Booth in 1876, has lately reached us, and we have great pleasure in calling attention to it. It has been carefully prepared by Mr. A. F. Griffith, M.B.O.U., who is a member of the Town Council's Committee in charge of the Museum, and takes very great interest in it.

Into the original "Booth Collection" only specimens obtained by Mr. Booth himself were allowed to enter. This rule has, naturally, been relaxed since his death, and many good additions have been made to the 308 cases.

In September 1891 the valuable collection of birds formed by the late Mr. William Borrer, of Cowfold, was purchased by the Town and added to the Booth Collection. Since that date many other examples of rare species, mostly obtained in Sussex and in the adjoining districts, have been received from various sources, amongst which we may mention the Gyr-Falcon, the Snowy Owl, the Aquatic

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* "A few words in reply to Mr. E. W. Oates's paper on the species of Bean-Geese."

Warbler, the Tawny Pipit, the American Bittern, and the Sooty Shearwater.

Each species is placed in a separate case, which is fitted up to represent, as far as possible, the natural surroundings of the bird in its native haunts. The cases being of different sizes it has not, unfortunately, been possible to arrange them in exact systematic order.

92. *Chapman on the Ornithology of the Borders.*

[Bird Life of the Borders on Moorland and Sea, with Faunal Notes extending over Forty Years. By Abel Chapman. London, 1907: Gurney and Jackson. 8vo. Pp. i–xii, 1–458; 27 full-page and many text illustrations.]

In the first edition of this book * Mr. Chapman gave an accurate and life-like description of the Birds of the Border Country, coupled with a pleasing account of the district itself. He has now enlarged the scope of the work to include portions of Roxburgh- and Berwick-shires formerly omitted, as may be seen from the very clear map with which he has supplied us. The chapters on Red Grouse and Black-game are a perfect mine of information to the sportsman and naturalist, while those dealing with wild-fowling on the Northumberland coast may be considered, as the author claims, the best exposition of the subject to be found in contemporary writings; they hold the reader's attention throughout, and well describe the dangers and difficulties of this exciting aquatic sport. Nor are these the only points of excellence in a most interesting local book; all the species from the smallest to the largest come in for their due share of attention, whether they be Warblers, Birds-of-Prey, Geese, Waders, or Sea-fowl; the process of Migration, moreover, affords material for one chapter, and notes on game-fishes for another.

We must, however, hold Mr. Chapman accountable for ignoring the work of his predecessors, and demur to the statement on his first page that he is writing of "a wild corner neglected and unknown." On the contrary, few districts have been better worked, as may be seen by consulting the volumes of 'Proceedings of the Berwickshire Naturalists' Club' from 1831 to the present day. The author may fairly claim a better knowledge of the south of Northumberland, where he resides, and of the special sport of wild-fowling; but his acquaintance with the North-eastern Borderland leaves something to be desired, and is by no means so thorough as that of Dr. George Johnston and his successors, while the fact that the earliest of Field Clubs finds nowadays less scope for its ornithological energies serves but to shew how much it has accomplished in time past.

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* See 'Ibis,' 1889, p. 245.

93. *Clark on new Birds from Eastern Asia.*

[Eighteen new Species and one new Genus of Birds from Eastern Asia and the Aleutian Islands. By Austin H. Clark. Proc. U.S. Nat. Mus. xxxii. p. 467.]

This paper is based mainly on a series of 554 skins obtained by the late Mr. P. L. Jouy during a residence of over three years in Corea, which are said to form the most important collection ever made in that country. Mr. Clark was allowed to make use of it in connection with his work on the ornithological results of a recent cruise of the U.S. Fisheries' Steamer 'Albatross' in the Northern Pacific. Besides establishing a new genus *Tisa* (type *Emberiza variabilis* Temm.), Mr. Clark characterizes as new the following species and subspecies:—

Ardea cinerea jouyi (Corea), *Phasianus karpowi buturlini* (Tchusima), *Lagopus japonicus* (Hondo), *L. rupestris chamberlaini* (Adak Island, Aleutians), *Æsalon regulus insignis* (Corea), *Cerchneis perpallida* (Corea), *Bubo tenuipes* (Corea), *Syrnium ma* (Corea), *Syrnium uralense japonicum* (Hokkaido), *S. u. hondoense* (Hondo), *Dryobates leucotos coreensis* (Corea), *D. l. ussurianus* (Siberia), *Gecinus canus griseo-viridis* (Corea), *Pericrocotos cinereus intermedius* (Corea), *Olbiorchilus fumigatus peninsulæ* (Corea), *O. f. amurensis* (Amoor), *Remiz* (!) *consobrinus suffusus* (Corea), and *Acredula trivirgata magna* (Corea).

Some of these "subspecies" appear to us to be based on very slender characters, and *Æsalon regulus insignis* is founded upon a single specimen in "juvenile plumage."

94. ‘*The Emu.*’

[The Emu. A Quarterly Magazine to popularize the Study and Protection of Native Birds. Vol. vi. pt. 4, April 1907.]

The longest paper in this part of our Australian contemporary consists of an account of the explorations undertaken by the Members of the Sixth Congress of the Australasian Ornithologists' Union in Tasmania, with a most interesting description of the birds observed at Mt. Wellington, Launceston, and Mount Barrow. The writer, Mr. J. W. Mellor, also gives his experiences on Mount Arthur and in the newly opened up Great Lake District, which were visited after the meeting was concluded.

Mr. F. L. Berney continues his notes on the Richmond region of North Queensland, and Mr. G. F. Hill begins an article on the birds of the Ararat district in Victoria, while the breeding-habits of *Casarca variegata* at Resolution Island and of *Pelagodroma marina* at Port Phillip Bay furnish material for the pens of Mr. Richard Henry and Messrs. A. H. Mattingley and A. G. Campbell. "The Family Certhiidæ in Australia" is the title of another article by the last-named, in which the genera *Climacteris* and *Sittella* are discussed at length; and Mr. F. E. Horne writes at some length on *Pycnoptilus floccosus*.

95. *Field Museum of Natural History.*

[Field Museum of Natural History. Annual Report of the Director to the Board of Trustees for the Year 1906. Chicago, 1907.]

The great Museum of Chicago has recently suffered a sad loss by the decease of its founder and benefactor Mr. Marshall Field. For a year before his death he was busy planning the erection of a new building upon a very extensive scale, and he has left by his will a bequest of four million dollars for its accomplishment. The name of the Museum has been appropriately changed to perpetuate his memory.

The list of the staff tells us that Dr. D. G. Elliot, well known to many of us, has given up the Curatorship of the Department of Zoology, and has been appointed Honorary and Supervisory Curator of the same Department.

Mr. Charles B. Cory is now Curator of the Department, and Dr. N. Dearborn is Assistant for Ornithology.

From what is stated in the Report it will be evident that a large amount of excellent work has been done in all the four Departments of the Museum during the past year, while no less than 32 separate expeditions for the acquisition of specimens have been sent out. Dr. Dearborn himself went to Guatemala, and obtained upwards of one thousand bird-skins. This is obviously a much better mode of stocking a museum than by purchasing stray specimens from dealers, and might advantageously be more often followed in some of the larger Institutions of Europe.

96. *Finsch on Birds new to the Javan Ornis.*

[Neue Arten zur Javanischen Ornis. Von Dr. O. Finsch. J. f. O. 1907, p. 301.]

Herr Max Bartels, well known for his writings on the birds of Java, has lately made an excursion to the Thousand Islands, which lie in the Java Sea about fifty miles north of Batavia. Amongst the species of which examples were obtained are two new to science, which Dr. Finsch describes as *Chibia ter-meuleni* and *Zosterops maxi*. A complete account of the collection is being prepared.

97. *Goeldi's 'Album of Amazonian Birds.'*

[Album de Aves Amazonicas, organizado pelo Professor Dr. Emilio A. Goeldi. 3º Fascicolo. 1906.]

The issue of the third fasciculus brings Dr. Goeldi's 'Album of Amazonian Birds' to a conclusion. We have already noticed the two former parts (see 'Ibis,' 1902, pp. 149, 510, and 1904, p. 151), and have explained the nature and object of the work, which will, no doubt, have great effect in calling attention to the rich Avifauna of the Amazon and its affluents. The 48 plates, which are printed in colour and contain several figures each, portray the outlines and varied plumages of all the leading and characteristic forms of the Amazonian Ornis, and will render their identification comparatively easy. We congratulate Dr. Goeldi on having completed this useful piece of work before his final retirement from Pará and return to Europe, which we have already announced *.

98. *Grinnell on the Birds of the Santa Barbara Islands.*

[Report on the Birds recorded during a Visit to the Islands of Santa Barbara, San Nicolas, and San Clemente in the Spring of 1897. By Joseph Grinnell. Pasadena, California, August 1897. 26 pp.]

In some remarks on a paper of Dr. Mearns (see above, p. 498) it was mentioned that we had never seen the memoir of which the title is given above. The author has now kindly supplied the want so expressed by sending us a copy of it, for which we offer him our best thanks.

Mr. Grinnell (now, we believe, Editor of 'The Condor') was the leader of a scientific expedition sent out by the Pasadena Academy of Sciences, in 1897, to explore the Santa Barbara group, and the present paper contains the results arrived at, so far as regards the birds met with on the three above-mentioned islands, which lie from 30 to 60 miles off the coast of Southern California. During the expedition 450 bird-skins and many eggs were collected. On Santa Barbara 14 species of land-birds were observed, on San Nicolas 9, and on San Clemente 31. The list of water-birds contains the names of 24 species. Good field-notes are given.

The Avifauna of the Santa Barbara group is purely Californian, except in the case of four or five possibly distinguishable forms which have been raised to the rank of "subspecies."

99. *Pycraft on the Anatomy of the Penguins.*

[On some Points in the Anatomy of the Emperor and Adélie Penguins. By W. P. Pycraft. Nat. Hist. of the National Antarctic Expedition, vol. ii. London, 1907.]

The authorities of the British Museum did well to place the specimens of the nestlings and embryos of the Penguins collected during the National Antarctic Expedition in the hands of Mr. Pycraft. Though several excellent memoirs on the structure of this anomalous group have been written of late years, Mr. Pycraft has not failed to find new points on which to enlighten us, and has added much to our knowledge of the structure of these birds. He begins by describing the pterylosis of the adult Penguin, and repudiates the oft-repeated myth that its feathers are "scale-like and reptilian." In fact, though "unquestionably degenerate," they have no more likeness to the scales of reptiles than the feathers of other birds. But the principal part of the memoir is devoted to the nestling's down and the successive plumages of adolescence, on which much new information is given. The syrinx of the Emperor Penguin and its intestinal tract are also described and figured.

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* See above, p. 511.

In the concluding summary Mr. Pycraft reviews the information to be acquired from the remains of fossil Penguins recently discovered in Patagonia, New Zealand, and Seymour Island, and discusses its bearing on the origin and affinities of the group. The Penguins, he says, "have probably descended from birds which possessed full powers of flight." The Steganopodes must be regarded "as representing a common ancestral stock, from which have descended the Sphenisci, Colymbi, and Tubinares on the one hand, and the Ciconiæ, Accipitres, and Anseres on the other."

100. *South African Ornithologists' Union, Journal of.*

[The Journal of the South African Ornithologists' Union. Second Series. Vol. i. No. 1. Pretoria, June 1907.]

The first number of the new (second) series of the 'Journal of the South African Ornithologists' Union' was published at Pretoria in June last, and contains many interesting papers.

The first article by Mr. A. K. Haagner, who is now chief Editor, contains good contributions to our knowledge of the Honey-guides (Indicatoridæ), both as regards their parasitic habits and their bodily structure. The tooth-like appendages on the beak of the nestling in these birds described and figured here are, we believe, quite a new discovery and of great interest. Mr. Haagner will pardon us for reminding him that Sclater was, we believe, the first writer who raised the Honey-guides to family rank (see his article in 'The Ibis,' 1870, p. 176), and emphasized their structural peculiarities. After Mr. Haagner's paper Major Sparrow continues his valuable field-notes on South-African birds, Mr. Roberts gives us further information as to the curious breeding-habits of the Pin-tailed Widow-bird (*Vidua principalis*), and Messrs. Taylor and Bucknill contribute an excellent account of the birds met with in the Amsterdam district of the Transvaal, near the Swazi-land border. Other good articles by Mr. Symonds (on the birds of Kroonstad, Orange River Colony), by Dr. Turner (on his expedition into Portuguese East Africa), by Mr. Thomsen (on the Locust-birds of the Transvaal), and by Mr. Haagner and Mr. Ivy (on the birds of the Albany Division of the Cape Colony) follow, the last being illustrated by a well-drawn plate of eggs, amongst which is a figure of that of *Irrisor viridis*. We have here also further news of the parasitic breeding-habits of *Indicator*. Occasional notes and reviews conclude this very successful number of our contemporary.

101. *Thayer and Bangs on the Birds of Sonora.*

[Breeding Birds of the Sierra de Antonez, North Central Sonora. By John E. Thayer and Outram Bangs. Pr. Biol. Soc. Washington, xix. p. 17.]

In the breeding-season of 1905, Mr. W. W. Brown, Jr., made a collection of birds for Mr. Thayer in the Sierra de Antonez in North Central Sonora, about 95 miles south of the Arizona boundary. The authors give us a list of them with a few notes. Mr. Brown took many sets of eggs, the most interesting of which were perhaps those of *Aimophila* (scr. *Hæmophila*) *maccleodii* Brewster. *Psaltriparus plumbeus cecaumenorum* (?), a "well-marked southern form of *P. plumbeus*," is described as a new species.

102. *Thayer and Bangs on a new Thrasher.*

[A new Race of the Californian Thrasher from Lower California. By John E. Thayer and Outram Bangs. Proc. New Engl. Zool. Cl. iv. p. 17.]

Toxostoma redivivum helvum (the authors will kindly excuse us for putting the adjectives into the same gender as the substantive) is the representative subspecies of *T. redivivum* in Lower California, distinguished by its paler colour.

103. *Van Oort's Notes on Birds from the Leyden Museum.*

Dr. E. D. Van Oort sends us separate copies of three "notes" which he has contributed to the 29th volume of the 'Notes from the Leyden Museum.' In the first of these (No. vi.) he shews that the Australian Spoonbill (*Platalea regia*) "occurs as a rare straggler in the Eastern Austro-Malay Archipelago, and that its western limits are N.E. Celebes and Timor." In the second (No. vii.) he describes a new subspecies of *Rhectes* from Batanta under the name *Pitohui cerviniventris pallidus*, and gives a list of the specimens of this genus in the Leyden Museum. In the third note (No. viii.) Dr. Van Oort shews that the typical specimens of *Edoliosoma morio* (Temm.) were obtained by Forsten in Northern Celebes and belong to the northern form which Meyer and Wiglesworth have called *E. morio septentrionalis*. But this is, in fact, the true *E. morio*; he, therefore, proposes to name the southern form *E. morio wiglesworthi*.

104. *Whitaker on the Birds of Nottinghamshire.*

[Notes on the Birds of Nottinghamshire. By J. Whitaker. Nottingham: Walter Black & Co., 1907. 8vo. Pp. i–xviii, 1–298; 2 col. pl. and 10 illustrations.]

This pleasantly written book—by a keen lover of nature, and not, as the author is careful to inform us, by a scientific naturalist—gives an excellent popular account of the county and its birds, and may strongly be recommended to all dwellers in the Midlands, though it is of comparatively little use to advanced Ornithologists. Nottinghamshire, besides containing the forests of Birkland, Mansfield, and Rufford, with much rough heather country, is noted for its splendid parks and fine sheets of water, while the Trent and other smaller streams naturally attract many kinds of water-fowl.

Mr. Whitaker commences his volume with an Introduction of considerable length, in which, among other details, we find accounts of Willughby, Wolley, and other lesser lights of the ornithological world: he supplements this with useful notes on no less than two hundred and fifty-nine species of birds, and makes a point of tabulating the dates of arrival of the spring migrants. Of special interest are the first occurrences in Britain of the Dusky Thrush and Egyptian Nightjar, the earliest record of the breeding of the Tufted Duck in this country, and the local appearances of the Sand-Grouse in 1888. Perhaps we should hardly object, in a popular book, to including the evidence of keepers and taxidermists, but we certainly do not, as yet, feel inclined to admit the Red-tailed Buzzard and the Spotted Sandpiper of America to the British list.

105. *Wilson on the Birds of the National Antarctic Expedition.*

[National Antarctic Expedition. Natural History, vol. ii. Vertebrata, Aves. By Edward A. Wilson, M.B. With 13 plates. London, 1907.]

The second volume of the report on the Natural History of the National Antarctic Expedition (the publication of which was undertaken by the Trustees of the British Museum, on the condition that the specimens upon which it is based should be deposited in the National Collection at South Kensington) contains Dr. Wilson's account of the birds met with by the Expedition. We need hardly say that it is of very great interest. No collection of birds has ever been previously made at a spot so far south as the winter-home of the 'Discovery,' although, as bird-life is there nearly approaching its extreme southern limit on the earth's surface, the number of species met with was not so great as would have been the case a little further north. At the same time the novelty arising from the far-south locality (78° S. L.) greatly enhances the value of the series.

The Penguin may be said to be the predominant factor of vertebrate life in the South Polar Seas, as the Ice-Bear is in the far north, and supplies the adventurous explorer with a corresponding amount of excellent food. The largest and finest living representative of this group is the Emperor

Penguin (*Aptenodytes forsteri*), of the previously little-known habits and haunts of which we have a complete account in the present volume. This account extends to 36 quarto pages, and is illustrated by 7 coloured plates and 24 figures in the text. So nearly complete is the history of this bird now set before us by Dr. Wilson that instead of being the least-known species of the Penguin-family it has now become, perhaps, the best-known of the whole group. And its habits are certainly extraordinary. What can be more remarkable than a bird which lays its egg on an ice-field, and protects it from cold by retaining it on the upper surface of its feet during the whole period of incubation? No naturalist should fail to read Dr. Wilson's story of this and other wondrous phenomena exhibited by the Emperor Penguin, which are illustrated by a long series of excellent figures.

The only other Penguin of Victoria Land is the Adélie Penguin (*Pygosceles adeliæ*), of which bird and its strange ways we have likewise an excellent history in the present volume. But, instead of breeding on the ice or on the beach at sea-level, this extraordinary bird chooses to make its rookeries "high up on the mountains." One wonders how "the young that are hatched out on such heights, nearly a thousand feet above the sea, can ever obtain a sufficiency of food. Yet they are well grown and healthy, thanks to the untiring efforts of their parents, which, during the breeding-season, form a constant stream passing up and down the sides of the mountain in beaten tracks."

On Macquarie Island, which was visited on the return of the 'Discovery' in November 1901, the Naturalists of the Expedition were fortunate in finding the King Penguin (*Aptenodytes patagonica*) breeding, and thus having the opportunity of comparing its habits with those of its larger relative. Like the "Emperor" the "King" holds its egg upon its feet "tucked in between its legs, and covered from sight by a loose fold of skin and feathers." The egg is thus kept away from the "wet and muddy quagmire on which these birds prefer to incubate."

After the Penguins the two Skua-Gulls of the Antarctic Seas are described—*Megalestris maccormicki* being the special form of the extreme south, while *M. antarctica* was met with only on Macquarie Island.

McCormick's Skua has the distinction of having been seen in 80° 20′ S. L., which is further south than any other bird has been yet observed.

The remainder of the volume is devoted to the Petrels and Albatroses, which, as we all know, are highly developed in the Southern Seas, and as regards species and genera are more numerous than any other Antarctic Group, although, possibly, not so numerous in individuals as the Penguins. Dr. Wilson includes 24 of the Tubinares in his list, of which 16 are Petrels and 8 are Albatroses. Excellent accounts of the habits and customs of these birds are given, with critical remarks on the standing of several species.

The quarto plates which conclude the volume are beautifully drawn and coloured.

The 46 figures in the text also deserve our warmest commendation. They are mostly taken from the sketches of Dr. Wilson and Mr. Skelton, but Mr. Royds and others have also contributed to the series. As regards ornithology, at any rate, we are satisfied that the members of the National Antarctic Expedition have executed the task assigned to them in a most efficient manner.

XXXVIII.—*Letters, Announcements, Notes, &c.*

We have received the following letters addressed to "The Editors":—

Sirs,—In your last issue ('Ibis,' 1907, p. 483) you state that it is by no means certain that the so-called *Cygnus davidi* is only a "variant" of *C. bewicki*, and not a good species. I think I have sufficient material at hand to be able to affirm that you are quite right.

The original "*Cygnus davidi*" of Swinhoe (P. Z. S. 1870, p. 430; *op. cit.* 1871, p. 416) is without doubt not a true

Swan at all, though I am by no means *quite* sure that Mr. Alphéraky ('Geese &c.,' London, 1905, p. 13) is right in considering it to be only a Snow-Goose. But the bird called "*Cygnus davidi*" by Messrs. Giglioli and Salvadori (P. Z. S. 1887, p. 589) has nothing to do with Swinhoe's bird, and is a Swan, which can be readily distinguished from our common *C. bewicki* as a larger eastern race of that bird. Indeed in 1904 it was actually described and named "*Cygnus bewicki jankowskii*" by Mr. S. N. Alphéraky, in a Russian Sporting Periodical ['Nature and Sport' (Priroda i Okhota), Sept., p. 10], from some heads sent to that naturalist from Ussuri-land by Mr. Jankowski. Mr. Alphéraky mentions only its generally larger size, especially its stouter bill.

I brought from my trip to Kolyma, N.E. Siberia, in 1905, fifteen adults of this Swan, besides some young ones and chicks, in complete skins, and as many heads in spirits. This material I compared with types of Mr. Alphéraky and with all the specimens in the St. Petersburg Academical Museum, together amounting to about 70 examples of *C. jankowskii*, 15 of *C. bewicki*, and 30 of *C. musicus*.

C. musicus is always distinguishable not only by the colouring of the bill, but also by the wing being longer than 560 mm., and by the middle toe with the claw being longer than 147 mm. All the other dimensions in smaller specimens of *C. musicus* (though quite adult) and in larger specimens of *C. jankowskii* merge into one other. *C. musicus* seems not to visit arctic lands at all, at least in Siberia, the northernmost specimens being from Verkhne-Kolymsk (about 65° 4½′ N.) and Anadyr.

C. jankowskii breeds in the tundras of Eastern Siberia from the Lena Delta eastwards; some of the Lena specimens, and even a specimen from Monjero (a tributary of the Khatanga), are true *C. jankowskii*, others are undoubtedly *C. bewicki*. During migration it is met with as far to the west as Dzungaria. It is altogether larger than *C. bewicki*, while the yellow of the bill is somewhat more developed, but the best diagnostic character is its much broader bill. Fully adult examples of *C. bewicki* have the maximum breadth of the bill about 28–30·5 mm., exceptionally reaching to 31 mm., and the length of the bill from the eye is less than 114 mm. In *C. jankowskii* the greatest breadth of the bill is 32–36 mm., rarely 31·5 mm., and in only one specimen (of the seventy) 30·75 mm., but then this specimen has the bill from the eye 122 mm. long. Even in quite young birds this broad bill is a reliable character, as will be seen from the table of dimensions given below.

C. bewicki breeds from the Lena Delta westwards. Among nine specimens labelled "Lena Delta" four are true *C. bewicki* and the others *C. jankowskii*. In the following table the dimensions (in millim.) are taken from old birds, except two quite young ones; the young *C. jankowskii* is from the Lower Yana, and the young *C. bewicki* from Turukhansk on the Yenesei. The Yana bird is somewhat younger:—

	Species	*C. bewicki.*		*C. jankowskii.*		*C. musicus.*
	Age	Old.	Young.	Young.	Old.	Old.
	Wing	500–520	425	400	490–550	570 –610
	Exp. culmen	92– 95	57	54	90– 99	97 –121
Bill	from eye	99–113	96	90	108–126	119 –136
	from nostrils	39– 41·5	32	31	38– 42·5	42 – 51
	broad	28– 31	24·2	24·5	30·75– 36	32·5– 34
	high	39– 43	31	27	37– 48	41 – 51·5
	Tarsus	104–117	104	98	102–114	115 –124
	Mid. toe w. claw	127–139	118	114	126–142	150 –164

About the habits of *C. jankowskii* and its curious dancing-performances during the breeding-time, as observed in the Kolyma Delta, I hope to be able to tell you when not so much pressed by other work.

I am, Sirs, yours &c.,
S. A. BUTURLIN.

Wesenberg, Esthonia, Russia,
July 22nd, 1907.

SIRS,—In the last number of 'The Ibis' (above, p. 379) a "*Coriphilus cyaneus*" is described and figured as a new species. I cannot say whether this is really a new species, but even if such be the case the name cannot stand, as there is already a *Psittacus cyaneus* Sparrm. (*Coriphilus cyaneus* Wagl. Mon. Psitt. p. 564) (see Salvadori, Cat. of the Psittaci, p. 46).

I am, Sirs, yours &c.,
T. SALVADORI.

Turin Zool. Mus.,
July 19th, 1907.

[We have communicated with Mr. Scott Wilson on this subject. He much regrets the oversight, and proposes to alter the name of the new species to *Coriphilus cyanescens*.—EDD.]

SIRS,—In the last number of the 'Ornithologische Monatsberichte' (pp. 135–6) Dr. Reichenow has written some remarks upon *Phœbetria cornicoides* and *Sterna antistropha*, which he considers are called for by the statements made in my recent paper in 'The Ibis' on the "Birds of the Weddell Sea" (above, p. 325).

As regards the two Sooty Albatroses, the specific distinction of which he is not at present inclined to concede, he says that I "imagine" that *Phœbetria fuliginosa* inhabits the South Atlantic, while *P. cornicoides* occurs only in the Antarctic Ocean. I must say, however, that I never "imagined" anything of the kind. I alluded to the almost impossible task of unravelling the tangled skein involved in defining the range of the two forms, and then proceeded *to record the facts* that all the birds obtained or seen by the Scottish Expedition in the far south belonged to *P. cornicoides*; while *P. fuliginosa* was only observed by the expedition in the South Atlantic. So far, indeed, was I from saying that *P. fuliginosa* was confined to the South Atlantic that I remarked "it is certain that this Albatros does attain to a higher degree in southern latitudes"—*i. e.* than 58°, the highest in which it was observed by the 'Scotia's' naturalists.

As to the Terns observed and obtained in the far south, Dr. Reichenow claims that they were specimens of his *Sterna antistropha*. Here, again, I would refer him to my statement (*op. cit.* p. 347) that "the 'Scotia's' specimens do not exhibit the peculiarities attributed to this subspecific form" (it was described by Dr. Reichenow as *S. macrura antistropha*). I may further state that Mr. Howard Saunders and I compared the 'Scotia' specimens with the series of *S. macrura* in the British Museum, and were convinced that they were simply typical examples of that species.

I am, Sirs, yours &c.,
Royal Scottish Museum, Edinburgh, WM. EAGLE CLARKE.
July 1907.

The Bird-Collection of the British Museum.—We extract the following passages on the additions made to the Collection of Birds in the British Museum of Natural History during the past year, from the Parliamentary Report on that Institution for 1907, which was received on August 27th.

The total number of accessions in the Class "Aves" was 9659, the most noteworthy being the following:—119 specimens from Japan and Corea, collected by Mr. M. P. Anderson, presented by the Duke of Bedford; 500 specimens collected by Mr. M. J. Nicoll during the voyage of the R.Y.S. 'Valhalla,' presented by the Earl of Crawford, K.T., F.R.S.; 526 birds from Western Yunnan, collected and presented by Colonel G. Rippon; 108 birds from Upper Burma, presented by Capt. H. H. Harington; 365 birds from Western Australia, collected by Mr. Shortridge, presented by Mr. W. E. Balston; 168 birds from Western Virginia, presented by H. T. Burls, Esq.; 71 birds from Uganda, presented by Dr. Cuthbert Christy; 205 specimens from Lower Nigeria, collected by Mr. Robin Kemp, purchased; 21 specimens from the River Gambia presented by Dr. E. N. Hopkinson; 19 specimens from Sarawak, presented by Mr. R. Shelford; the type of a new Hill-Partridge (*Arboricola batemani*), presented by Mr. Eugene W. Oates; a specimen of the Australian Cassowary (*Casuarius australis*) and 10 Birds of Paradise (*Schlegelia calva*), presented by Sir William Ingram, Bart.; 3 Prince of Wales's Pheasants (*Phasianus principalis*) from the Hari River, presented by Colonel P. Molesworth Sykes, H.B.M. Consul-General for Khorasan; 9 types of new species from Equatorial Africa, presented by Mr. F. J. Jackson, C.B., C.M.G.; 2 eggs of the Standard-winged Nightjar (*Macrodipteryx macrodipterus*), presented by Mr. J. H. J. Farquhar; 7 specimens of birds and 40 nests and eggs from Setubal, Portugal, presented by Don Luiz Gonzaga do Nascimento; 394 birds from Gunong Tahan, Malay Peninsula, presented by the Selangor State Museum; 27 birds from the River Niger, presented by Mr. Churchill Bryant; 4 Wild Turkeys (*Meleagris gallopavo*) from Durango, Mexico, presented by Mr. J. H. Fleming; a valuable collection of North American Birds formed by Mr. Gerrit Miller, and consisting of 4000 skins, including the Maynard Collection of Bahama birds and several types, purchased.

Mr. C. D. Rudd has continued his donations of birds from South Africa and Mozambique, whence large series have been sent by Mr. Claude Grant, who is collecting for Mr. Rudd.

Ninety-one birds from the Solomon Islands, collected by Mr. A. S. Meek, have been purchased. Twenty-seven nests of birds from the Andaman Islands have been presented by Mr. B. B. Osmaston. There have also been received fifteen birds, mostly Francolins, from British East Africa, presented by Colonel W. H. Broun; 1528 specimens of birds from the Ruwenzori Range and the adjacent parts of Equatorial Africa, presented by the subscribers to the Ruwenzori Expedition; 150 birds from Somaliland, collected by Mr. G. W. Bury, purchased; 331 birds from Benguella, collected by W. J. Ansorge, purchased; 79 birds from Annam, collected by Dr. J. J. Vassal, purchased; 262 birds from the Tian-Shan Mountains, collected by Mr. Kutzenko, purchased; 115 birds from Uganda, collected by Mr. E. Degen, purchased; and 212 birds from Camaroons, collected by Mr. G. L. Bates, purchased.

In the Bird-Gallery, we are told, continued progress has been made in the substitution of well-mounted specimens for those which had become blanched and discoloured.

Birds peculiar to the British Islands.—At the Conversazione of the Royal Society held at Burlington House on June 19th, 1907, Dr. Ernst Hartert exhibited a series of birds represented in the British Isles by peculiar forms, and examples of their Continental allies, for comparison. The following remarks were attached to the "exhibit":—

"As late as 1892 Wallace accepted only three birds as peculiar to the British Isles ('Island Life,' p. 340), and even more recent works have not mentioned more than three or four. Careful investigations, however, have shown that about twenty British birds present constant and often easily recognised differences from their Continental allies. Eighteen of these are exhibited, with their allies, in order to shew their differences."

The list of birds exhibited, which has been kindly supplied to us by Dr. Hartert, is as follows:—

Birds peculiar to the British Islands and their most nearly allied Continental representatives.

	CONTINENTAL FORM.	BRITISH FORM.
1.	Erithacus rubecula rubecula (*L.*).	Erithacus rubecula melophilus *Hart.*
2.	Regulus regulus regulus (*L.*).	Regulus regulus anglorum *Hart.*
3.	Cinclus cinclus aquaticus *Bechst.*	Cinclus cinclus britannicus *Tsch.*
4.	Ægithalos caudatus europæa (*Herm.*).	Ægithalos caudatus roseus (*Blyth*).
5.	Parus major major *L.*	Parus major newtoni *Praz.*
6.	Parus cæruleus cæruleus *L.*	Parus cæruleus obscurus *Praz.*
7.	Parus ater ater *L.*	Parus ater britannicus *Sharpe & Dress.*
8.	Parus palustris longirostris *Kleinschm.*	Parus palustris dresseri *Stejn.*
9.	Parus atricapillus salicarius *Brehm.*	Parus atricapillus kleinschmidti *Hellm.*
10.	Parus cristatus mitratus *Brehm.*	Parus cristatus scoticus (*Praz.*).
11.	Sitta europæa cæsia *Wolf.*	Sitta europæa britannica *Hart.*
12.	Certhia familiaris familiaris *L.*	Certhia familiaris britanica *Ridgw.*
13.	Motacilla alba alba *L.*	Motacilla alba lugubris *Temm.*
14.	Motacilla flava flava *L.*	Motacilla flava rayi (*Bp.*).
15.	Carduelis carduelis carduelis (*L.*).	Carduelis carduelis britannicus (*Hart.*).
16.	Garrulus glandarius glandarius *L.*	Garrulus glandarius rufitergum *Hart.*
17.	Dendrocopus major major (*L.*).	Dendrocopus major anglicus *Hart.*
18.	Lagopus lagopus lagopus (*L.*).	Lagopus lagopus scoticus (*Lath.*).

Proposed Memorial to the late Joseph Wolf, F.Z.S.—A few friends of the late Joseph Wolf have started a fund for placing a Memorial Stone over his grave in Highgate

Cemetery, where, at the present time, there is nothing to indicate that this is the grave of a consummate artist.

It is intended also to purchase a portrait of him, to be presented to the Zoological Society of London. The portrait, painted by Lance Calkin, was exhibited in the Royal Academy of 1890.

By the kind permission of Mr. B. Healey, a small tablet will be fixed at the entrance to No. 2 Primrose Hill Studios, London, where he died.

Joseph Wolf worked for thirty-two years for the Zoological Society of London, in whose Library is a large series of original water-colour drawings taken by him from animals living in the Society's Menagerie, and the good results of his labour can hardly be overstated. This appeal is made in order to enable some permanent mark of the high appreciation in which he was held, to be placed not only over his last resting-place, but also at the Studio where he worked, and in the Rooms of the Society of which he was a Fellow.

Donations to the Fund may be paid to Mr. Robert J. Howard, Shear Bank, Lilford Road, Blackburn.

Pycraft on the Osteology of the Passeres.—At the meeting of the Zoological Society of London held on the 9th of April last, Mr. W. P. Pycraft, F.Z.S., read a paper on the Osteology of the Oligomyodian and Diacromyodian Passeres, which has been since published in the Society's 'Proceedings' (see P. Z. S. 1907, p. 352). After referring to his previous contribution (published in the 'Proceedings') on the Osteology of the Eurylæmid and Tracheophone Passeres, he remarked that there seemed little room for doubt that the Diacromyodian and Oligomyodian Passeres must be regarded as divergent branches of a common stem. The latter suborder, according to his views, included the Tyranniformes, Phytotomidæ, and Pittidæ, while the former embraced the remaining Passeres.

In the present communication some fourteen Families were described, and these were divided into four groups—

Hirundines, Muscicapæ, Laniinæ, and Gymnorhinæ. This arrangement was based not on osteological characters alone, but also on the evidence of pterylosis and certain wing-muscles.

The author proposed to include the Vireonidæ in the Muscicapidæ, and the Vireolaniidæ in the Gymnorhinæ. With this last group he proposed, tentatively at any rate, to place the Paradiseidæ, inasmuch as there seemed good reason for continuing to regard these birds as near allies of the Corvidæ.

New British Antarctic Expedition.—A new expedition to the South Polar Regions has been organized by Lieut. E. H. Shackleton, an officer of the National Antarctic Expedition, who proposes to leave New Zealand in the 'Nimrod' early next year, and to establish his headquarters on some spot on King Edward-the-Seventh's Land, thence to make excursions into the unknown interior. Besides dogs and ponies, a motor-car (of special construction) is to be taken. Two biologists, Mr. James Murray and Mr. A. F. Mackay (Junior Surgeon), are to be members of the expedition. During the winter special attention will be paid to the breeding and nesting of the Emperor Penguin, concerning which some more information is thought to be required (see Geogr. Journ. xxix. p. 239, and xxx. p. 336).

Dr. Bruce's Arctic Expedition.—We are pleased to be able to state that Dr. Bruce, concerning whose safety some sinister rumours have been spread about, has returned from his expedition into the interior of Prince Charles' Foreland, and has arrived in Edinburgh. Dr. Bruce and his companions have made a good collection of the birds of Spitsbergen, and, as we are informed, have obtained specimens of several species new to the Avifauna of that group. Of these we may expect an early account from our correspondents in Edinburgh.

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